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Contribution to the weevil fauna of Montenegro with the description of a new *Echinodera* Wollaston, 1863 species, and lectotype designations in the genus *Sciaphobus* K. Daniel, 1904 (Coleoptera, Curculionoidea)

With 12 figures and 5 Appendices

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Abstract

We provide first records for 108 weevils species sensu lato (Curculionoidea) to the fauna of Montenegro. During a field trip 203 weevil species were recorded and are listed here. The records of *Archarius anatoliensis* Voss, 1962 are the first ones from the Balkans and document a further spreading of this species towards Northwest. *Echinodera bryneri* spec. nov. is described and compared with the sympatrically occurring, morphologically similar species *E. romanboroveci* Stüben, 1998. The lectotypes of *Sciaphobus paliuri* Apfelbeck, 1908, and *S. polydrosinus* Apfelbeck, 1922 conserved in the Georg Frey collection are designated, and illustrated comments on their differentiation are provided. For *Leiosoma komovicum* Pedroni, 2018 habitat, images of both sexes, a description of the female genitalia, and the presumable host plants are presented.

Taxonomic acts

Echinodera bryneri spec. nov. – urn:lsid:zoobank.org:pub:DDC7D844-A853-40D2-B217-333C65648144

Key words

Curculionoidea, Montenegro, species list, faunistics, taxonomy, new species, new records, lectotype designations, DNA barcoding, CO1, COI, COX1, integrative taxonomy

Zusammenfassung

Erstfunde von 108 Arten der Rüsselkäfer im weiteren Sinn (Curculionoidea) werden für Montenegro aufgeführt. Mit nur einer Exkursion konnten 203 Arten gefunden und bestimmt werden. Die Funde von *Archarius anatoliensis* Voss, 1962 sind die ersten auf dem Balkan und zeigen eine weitere Ausbreitung in Richtung Nordwest auf. *Echinodera bryneri* spec. nov. wird beschrieben. Die Lectotypen von *Sciaphobus paliuri* Apfelbeck, 1908, und *S. polydrosinus* Apfelbeck, 1922 werden festgelegt, und die relevanten Unterscheidungsmerkmale werden illus-

triert und kommentiert. Habitat, mutmaßliche Wirtspflanzen und Abbildungen beider Geschlechter von *Liosoma komovicum* Pedroni, 2018 werden vorgestellt, wobei die weiblichen Genitalstrukturen erstmals beschrieben werden.

Introduction

One important goal of the excursion reported here was to contribute to the extraordinarily poorly explored weevil fauna of Montenegro. Only little was published on Curculionoidea after several expeditions by the ancient specialists: Victor Apfelbeck to Czerna Gora (Apfelbeck 1895, 1906, 1907, 1908, 1915, 1918, 1919a, 1919b, 1919c, 1920, 1922, 1927, 1928) who described several endemic weevil species and subspecies in the subfamily Entiminae, and very recently Pedroni described *Liosoma komovicum* Pedroni, 2018 based on specimens from Montenegro (Pedroni 2018). But apart from these few examples, faunistic data from Montenegro are scarce (Pešić 2006) or largely lacking in recent catalogues (Löbl & Smetana 2011, 2013, Alonso-Zarazaga et al. 2017). And even when primary literature is searched, only exceptionally data specifically from Montenegro can be found (e.g. Caldara 1990 for *Tychius* Germar, 1817, Meregalli 1985 for *Plinthus* Germar, 1817, or more often Stüben 2018, 2019 for Cryptorhynchinae), and more recent records from the Balkans by Szénási (2017). Hence the weevil fauna of Montenegro still awaits being discovered. In the following we give a first insight in the rich fauna, and provide data for 204 Curculionoidea species from the families Apionidae (18 species), Attelabidae (2 species), Curculionidae (122 species), Erirhinidae (2 species), Rhynchitidae (3 species) and Nanophyidae (8 species). The recent study of *Echinodera* from Western Balkans, including already a small part of the material from Montenegro based on an integrative taxonomical approach (Germann & Schütte 2021) allowed to discover another new species of this genus, which is compared, described and discussed in this paper. Within the attempt to determine the collected species of the genus *Sciaphobus*, we found a series of type material in the Georg Frey collection at the NMB, which helped decisively in understanding the descriptions within that genus by Apfelbeck (1908, 1922), therefore a current insight into this genus is given here.

Material and methods

Localities

The following 28 localities were visited from 21st April to 1st May 2018 (see Fig. 1):

1 Bar Mun., Sotonići, 27km SW Podgorica, N 42.2365, E 19.0446, 200 m, 21.4.2018
2 Bar Mun., S Bar, Maslina, N 42.0117 E 19.1524, 20 m, 21.4.2018
3 Bar Mun., S Sutorman, N 42.1449 E 19.0988, 770 m, *Carpinus*-Wald, 22.4.2018
4 Bar Mun., N Sutorman, N 42.1646 E 19.0999, 630 m, 22.4.2018
5 Cetinje Mun., 2 km SE Kotor, Lovcén, N 42.4091 E 18.7888, 920 m, 23.4.2018
6 Cetinje Mun., 4.5 km SE Kotor, Lovcén, N 42.3947 E 18.8046, 1320 m, 23.4.2018
7 Cetinje Mun., 5.5 km SE Kotor, Lovcén, N 42.3967 E 18.8259, 1410 m, 23.4.2018
8 Cetinje Mun., Vidikovac, Lovcén, N 42.3993, E 18.8390, 1620 m, 23.4.2018
9 Podgorica Mun., 10 km N Podgorica, N 42.5031 E 19.3272, 84 m, 24.4.2018
10 Podgorica Mun., 12 km N Podgorica, N 42.5189 E 19.3285, 208 m, 24.4.2018
11 Podgorica Mun., 12 km N Podgorica, N 42.5270 E 19.3224, 252 m, 24.4.2018
12 Podgorica Mun., 15 km SW Podgorica, N 42.3051 E 19.1735, 15 m, 24.4.2018
13 Bar Mun., 7 km E Petrovac, N 42.2245 E 19.0234, 490 m, 24.4.2018
14 Bar Mun., 4 km E Dubrava, N 42.0182 E 19.1869, 170 m, 25.4.2018, ruderal area
15 Bar Mun., 1 km W Martići, N 42.0883 E 19.2919, 210 m, 25.4.2018, *Castanea*
16 Ulcinj Mun., N 41.9806 E 19.3389, Feuchtgebiet, Seeufer, 13 m, 25.4.2018
17 Bar Mun., 3 km E Dubrava, N 42.0264 E 19.1818, 200 m, 25.4.2018
18 Kolašin Mun., 2 km E Ljevišta, N 42.8746 E 19.3146, 950 m, 26.4.2018
19 Šavnik Mun., 4.5 km NW Ljevišta, N 42.9057 E 19.2610, 1580 m, 26.4.2018
20 Ulcinj Mun., 7 km E Ulcinj, N 41.9416 E 19.3019, 0 m, 27.4.2018
21 Ulcinj Mun., 4.5 km E Ulcinj, N 41.9193, E 19.2691, 0m, Meeresufer, Saline, 27.4.2018
22 Ulcinj Mun., 6 km NE Ulcinj, N 41.9711 E 19.2604, 25 m, Bachtal, 28.4.2018
23 Ulcinj Mun., 7 km N Ulcinj, N 41.9937 E 19.2235, 250 m, 28.4.2018
24 Bar Mun., 6 km E Dubrava, N 42.0403 E 19.2208, 270 m, Bachufer, 29.4.2018
25 Ulcinj Mun., 7.5 km Dubrava, N 42.0533 E 19.2317, 700 m, 29.4.2018
26 Bar Mun., 4 km E Dubrava, N 42.0228 E 19.1894, 220 m, 29.4.2018
27 Cetinje Mun., 10 km N Virpazar, N 42.3236 E 19.0667, 90 m, 30.4.2018

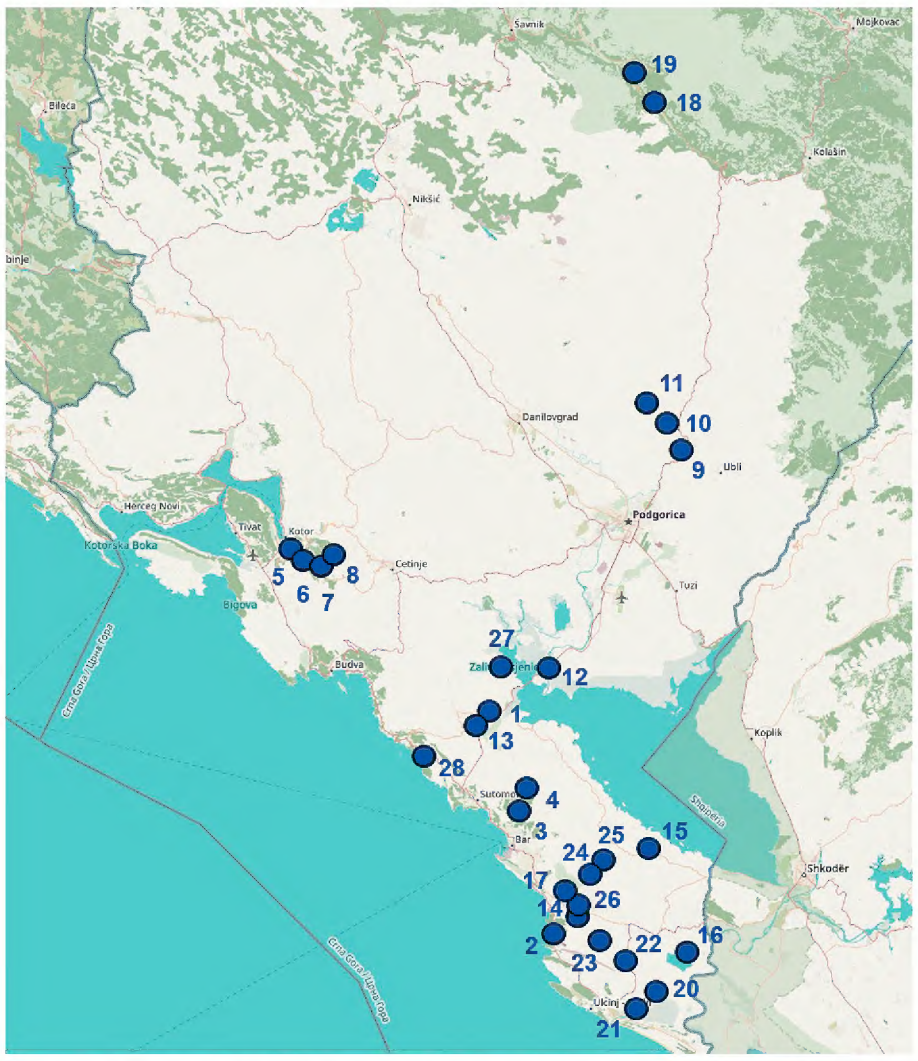

Fig. 1: Map with all 28 sampled localities in Montenegro (base layer by OpenStreetMap).

28 Budva Mun., 3.5 km SE Petrovac, N 42.1811 E 18.9695, 30 m, 1.5.2018, Flussdelta, Küstenmacchia

The collected weevils are deposited in the Naturhistorisches Museum Basel (NMB), except for selected specimens which are conserved in the author's collections. Label data are given as written, different labels are separated by a double slash (//). Additional remarks are given in square brackets ([]). The following holotype of *E. romanboroveci* was used for comparison: male Yugoslavia – Crna Gora Sutomore – env. 25.6.1989 R. Borovec lgt. // Holotypus // Holotypus *Echinodera romanboroveci* P.E. Stüben 1998 // 110.2 // DEI Müncheberg Col – 11466 (SDEI). Furthermore 13 specimens of *E. romanboroveci* collected during the present excursion were used for comparison.

Molecular analyses

For the molecular part of this study, a new CO1 barcoding sequence was generated and combined with 37 already published ones. All sequences originate from the Curculio Institute's joint projects, either with the Research Museum Alexander Koenig (ZFMK) or the SDEI/NMB. Due to the profound determination work by recognized specialists before the molecular processing of the specimens, a highly reliable dataset can be guaranteed. In many cases, additional specimens or remaining tissue samples from the same finding spot are available in frozen Ethanol. In most cases, the extracted specimens were recovered after the lysis step and stored in pinned dry collections at ZFMK or NMB. This additional laboratory step facilitates the possibility of verifying the previous determination.

For all sequences, two Cryptorhynchinae adopted primer sets with degenerated nucleotides are used in ZFMK and SDEI laboratory routines. For LCO1490-JJ / HCO2198-JJ see Astrin & Stüben 2008 and for LCO1490-JJ2/ HCO2198-JJ2 see Astrin et al. 2016. Both target the same binding sites as the well-known primer set from Folmer et al. 1994 does, delivering 658 nucleotides in weevils. Thus, the derived COI barcodes are compatible with Folmer primer generated ones and meet the requirement of BOLD (Ratnasingham & Hebert 2007, www.barcodinglife.org).

A nucleotide alignment with 37 sequences is created with Muscle-Plugin in Geneious 6.1.8 (Kearse et al. 2012). All sequences comprise 658 nucleotides (full-length barcode). From the nucleotide alignment, a Jukes-Cantor (Jukes & Cantor 1969) corrected Neighbor-Joining (NJ) tree is built with Genious, *Acalles camelus* is designated as outgroup species.

The finding spots associated with the sequences are plotted on an ArcGIS map base layer with GPS Visualizer (www.gpsvisualizer.com). The p-distance values are provided in the map with connection lines between the new species *Echinodera bryneri* spec. nov. and its four closest congeners.

Results

General comments

As specific faunistic contributions to Montenegro are largely missing, especially even more so in recent times, it is not a big surprise that out of 203 recorded species, 108 – more than half of them – are new to the fauna of Montenegro. Most of these new records concern species which are generally widespread, but some of them are worth being discussed more in detail, as they were rarely found, narrowly distributed (endemic) or unexpected and thus surprising.

Sampled habitats and excerpt of typical weevil species

Montenegro has a broad variety of interesting landscapes (**Figs 2A–H**). We mainly focused on the coastal region with limestone hills and low growing summergreen deciduous forests (*Carpinus- Fraxinus- Quercus* forests (**Fig. 2A**) [localities 1, 3–4, 25, 26] with *Aparopion costatum, Echinodera major, E. romanboroveci, Otiorhynchus perdix, Phyllobius argentatus, Polydrusus brevipes, Trichopterapion holosericeum*. Evergreen typical mediterranean *Quercus ilex*-forests (**Fig. 2B**) [localities 2, 22, 28]

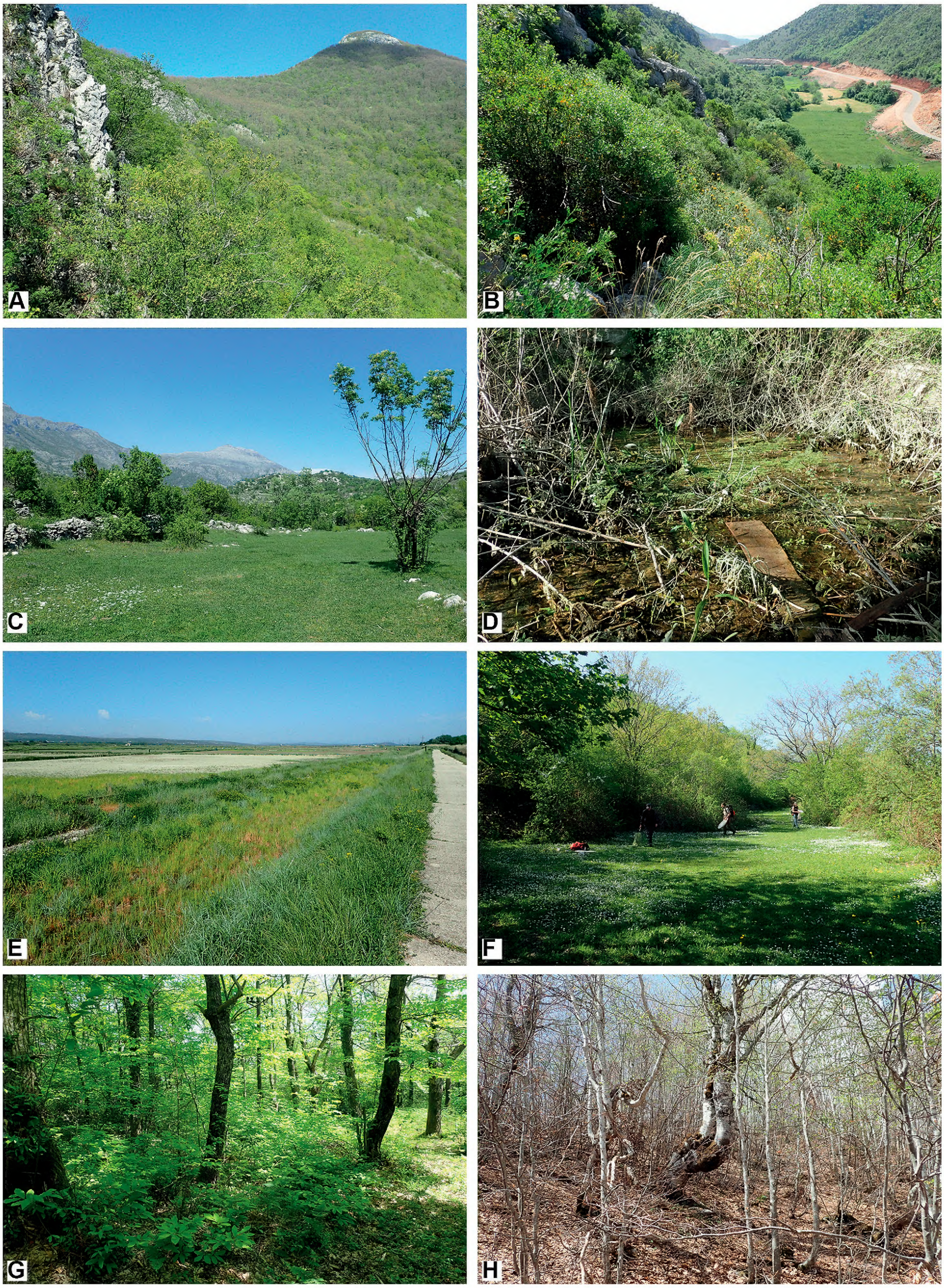

Fig. 2A: Limestone hills and low growing summergreen deciduous forests (locality 3). **Fig. 2B**: Evergreen typical mediterranean *Quercus ilex*-forests (locality 22). **Fig. 2C**: Extensively grazed and open meadows (11). **Fig. 2D**: Swamps, a river-delta, ponds and lake shores around Skadar lake (locality 16). **Fig. 2E**: Salty areas (locality 21). **Fig. 2F**: Humid creek valleys (locality 4). **Fig. 2G**: Tall chestnut trees (*Castanea sativa*; locality 15). **Fig. 2H**: Old grown beech forests (*Fagus sylvatica*) at 900–1600 m, locality 19 (Photos: C. Germann).

with *Dodecastichus heydenii*, *Otiorhynchus longipennis*, *Polydrusus cervinus, P. picus*. Extensively grazed and open meadows (**Fig. 2C)** [localities 9-11] with *Eutrichapion punctiger*, *E. viciae*, *Holotrichapion pisi*, *Ischnopterapion loti*, *Ceutorhynchus contractus*, *C. fulvitarsis*, *C. leprieuri*, *Oprohinus suturalis*, *Trichosirocalus horridus*, *Gymnetron aper*, *Mecinus pyraster*, *Sibinia pellucens*, *S. pyrrhodactyla*, *S. viscariae*, *Tychius aureolus*, *T. pusillus*, *T. rufipennis*, *T. tibialis*, *Argoptochus bisignatus*, *Phyllobius betulinus*, *Limobius borealis*, *Lixus punctiventris*, *Rhinocyllus conicus*. Swamps, a river-delta, ponds and lake shores around Skadar lake (**Fig. 2D)** [localities 16, 20, 28] with *Bagous bagdatensis*, *B. lutulentus*, *B. perparvulus*, *B. puncticollis*, *B. rufimanus*, *B. subcarinatus*, *Mononychus punctumalbum*, *Hypera conmaculata*, *Sphenophorus meridionalis*, *S. parumpunctatus*, *Tanysphyrus lemnae*, *Thryogenes festucae*, *Dieckmanniellus chevrieri*, *D. nitidulus*, *Nanomimus circumscriptus*, *Nanophyes brevis*, *N. marmoratus*. Salty areas (**Fig. 2E)** [locality 21] with *Polydrusus tibialis*, *Coniatus tamarisci*, *Allomalia quadrivirgata*, *Corimalia pallida*. Humid creek valleys (**Fig. 2F)** [localities 4, 22, 24] with *Melanapion minimum*, *Perapion violaceum*, *Echinodera bryneri* spec. nov., *Acalyptus carpini*, *Anthonomus pedicularius*, *Bradybatus seriesetosus*, *Miarus stoeckleini*, *Rhinusa moroderi*, *Brachysomus hirtus*, *Limatogaster tumidipes*. Tall chestnut trees towards the Albanian border (**Fig. 2G**) [locality 15] with *Eutrichapion ervi*, *Ceutorhynchus pectoralis*, *Phyllobius maculicornis*, *Magdalis fuscicornis*. Old grown beech forests (*Fagus sylvatica*) at higher elevated localities (**Fig. 2H**) [localities 5-8, 18-19] with *Apoderus coryli*, *Mogulones diecki*, *Cotaster cuneipennis*, *Acalles camelus A. fallax*, *A. papei*, *Acallocrates fasciatus*, *Echinodera graeca*, *E. hypocrita*, *Orchestes fagi*, *Polydrusus mollis*, *Stomodesops schaufussii*.

New species

Description

Echinodera bryneri spec. nov.

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Figs 3, 4A-B; 5A-G

Material: Holotype: male «312_18.25 Montenegro, Ulcinj Mun., 7.5 km Dubrava, N 42.0533 E 19.2317, 700 m, 29.4.2018, leg. C. Germann» // [red label] HOLOTYPE *Echinodera bryneri* spec. nov. des. Germann & Braunert, 2022 (NMB).

Paratypes: 1 male, 2 females same locality as holotype (NMB, cCG). – 2 males «312_18.22 Montenegro, Ulcinj Mun., 6 km NE Ulcinj, N 41.9711 E 19.2604, 25 m, Bachtal, 28.4.2018, leg. C. Germann» (NMB, cCG). – 3 males, 1 female «29.04.2018 Crna Gora Ulcinj Municipality 7.5 km Dubrava, N 42.0533° E 19.2317°, 700 m, 2018-24, 312-18-25 leg. C. Braunert» (cCB). – 1 male «22.04.2018 Crna Gora Bar Municipality S Sutorman N 42.1449° E 19.0988°, 770 m, Carpinus Quercus Forest, 2018-4, 312-18-3 leg. C. Braunert» (cCG). All with additional red labels: PARATYPE *Echinodera bryneri* spec. nov. des. Germann & Braunert, 2022.

DNAtype: The barcode sequence (COI) was extracted with a none-invasive method from one paratype female (nr. 3275-GER, locality 25, the same as holotype). GenBank accession no: OM991939.

Size (without rostrum): 2.3–3.2 mm. Body colour dark brown to blackish (Figs 4A–B).

Head: eyes flattened, large and oval, upper margin above rostral groove, visible from above. Rostrum deeply punctuate-striate; densely covered with small oval scales and hairs from middle on towards rostral apex. Antennae reddish brown, antennal scape: 5 times longer than wide, segments of antennal funiculus: 1st thicker than the following, 1st and 2nd: 2 x longer than wide, 3rd to 5th: as long as wide, 6th and 7th transverse, club oval, 2.5 x thicker than last segments of funiculus.

Pronotum: transverse (length/width: 0.7); maximal width before base in the first third, slightly rounded towards base; strongly narrowed, cone shaped towards front margin (Fig. 4A). Coarsely punctured, larger punctures towards hind margin. Integument and vestiture: colour patterns varying with darker and lighter brown scales; spotty placed light brownish to whitish scales. The integument consists of loosely standing, appressed, almost circular scales. Longer (2 x longer than wide), broadly oval, clubbed and nearly vertically raised bristles arise from punctures.

Elytra: globular (length/width: 1.0-1.1); widest in middle; without shoulders; base straight, elytral decline in lateral view rounded, vertical towards apex.

Integument and vestiture: colour patterns varying with darker and lighter brown scales; spotty placed light brown or whitish scales forming irregular transversal bandings. Consisting of almost circular appressed scales not entirely covering the intervals.

Striae narrow, about half the span of intervals, visible through integument; punctures with adjacent thin, scale-like bristles. On intervals long (3.5 to 4 x longer than wide), scale-like, clubbed, vertically raised bristles.

Legs: brown, strong, densely covered with elongated brown and light brown scales. Spine at tip of hind tibia regularly bowed inwards in males.

Penis: tip of medianlobus broadly pointed, in lateral view bent, S-shaped waved (Figs 5A–D).

Female genitalia (Figs 5E–G). Spermatheca with cornu c-shaped, ramus and nodulus not visible (Fig. 5E). Spiculum ventrale with shovel-shaped plate, basal edges of plate inclined in an angle of 40°, and apodeme more than twice as long, tip of apodeme thickened (Fig. 5F). Gonocoxite consisting of two sclerotized segments, stylus cylindrical (Fig. 5G).

Variability: The width of the erect bristles on the elytra varies to a certain extend, as well as the body size.

Etymology: The new species *Echinodera bryneri* spec. nov. (Fig. 3) is named after our dear friend and renowned expert in Microlepidoptera (especially Adelidae) Ruedi Bryner (Biel), who is furthermore a gifted breeder of various insects including occasionally weevils as unintended guests together with his target organisms.

Differential diagnosis: *Echinodera bryneri* spec. nov. is morphologically similar to *E. romanboroveci* Stüben, 1998, which was also found at five more northwestern localities within the sampled area (Fig. 1). *E. bryneri* spec. nov. was found at three localities in the southeast and one locality (3) harboured both species.

Echinodera bryneri spec. nov. has longer raised setae on elytra and scales on pronotum, the shape of the elytra is more rounded, the whole body is more robust and broader. The penis is broader, its tip wider with apex not rather regularly attenuated and pointed as in *E. romanboroveci*, but more abrubtly and more obtuse-angled pointed. The tip of the penis in lateral view with s-shaped wave ventrally less bowed than in *E. romanboroveci*. The female genitalia differ in the shape of the spermatheca (Fig. 5E, L), the shape of the plate of the spiculum ventrale, where the basal edges are rectangular in *E. romanboroveci* instead of inclined as in *E. bryneri* spec. nov. (Fig. 5F, M), and the shape of the gonocoxite (Fig. 5G, N). With its long and raised setae *E. bryneri* spec. nov. is furthermore superficially similar to *E. capiomonti* (Brisout de Barneville, 1865) occurring in Italy, Croatia and Bosnia and Herzegovina, but the distinctly shorter setae (8-10 times longer than wide in *E. capiomonti*) and the more oval elytra of *E. bryneri* spec. nov. already allow a reliable differentiation. *E. bryneri* spec. nov. is also similar to *E. brisouti* (Reitter, 1885) from Greece, but differs by the more erect bristles on elytra, and the different shape of the penis, which is attenuated before the tip in *E. brisouti*, and broadly rounded in *E. bryneri* spec. nov.

Taxonomical comments on the genus *Sciaphobus* K. Daniel, 1904 based on specimens from Victor Apfelbeck in the Georg Frey collection

Part of the genus *Sciaphobus* was revised by Borovec & Skuhrovec (2015). They redefined the subgenera *Sciaphobus* s. str. K. Daniel, 1904 and *Neosciaphobus* Apfelbeck, 1922, and mentioned difficulties that remain concerning those species where at that time no type material was available. As a small part of the Apfelbeck collection (especially Curculionidae) was included in the Georg Frey collection in 1935 (conserved in

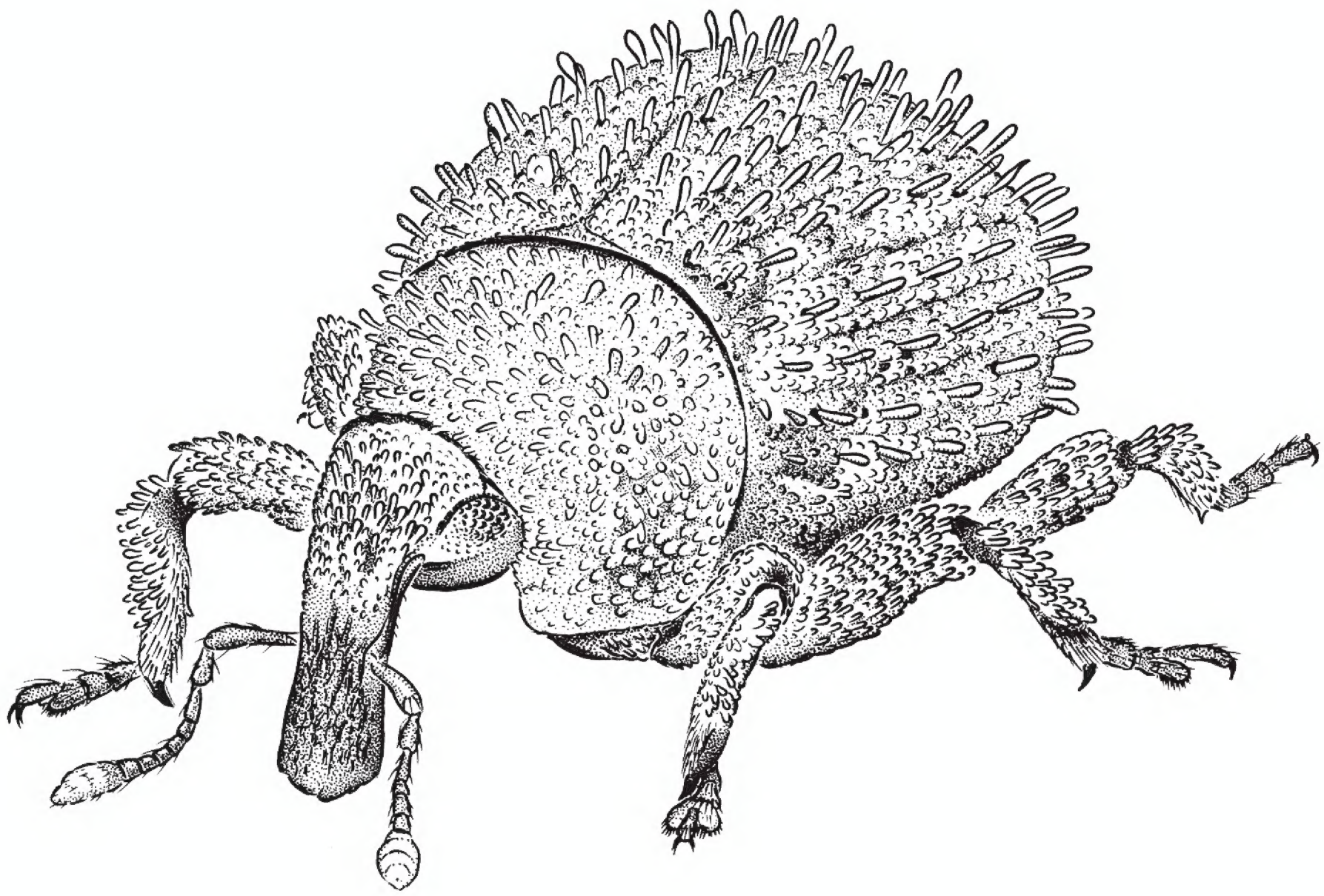
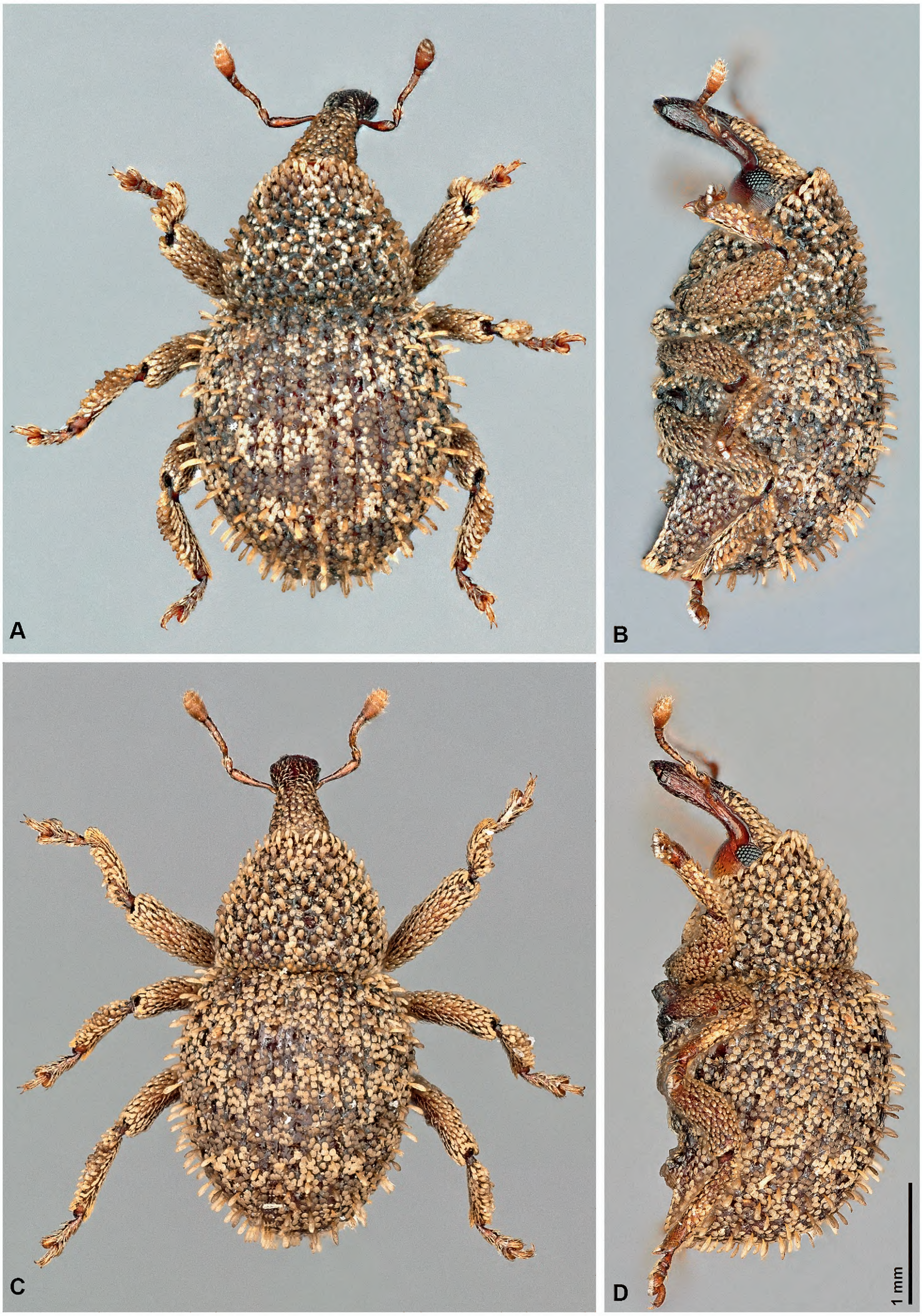
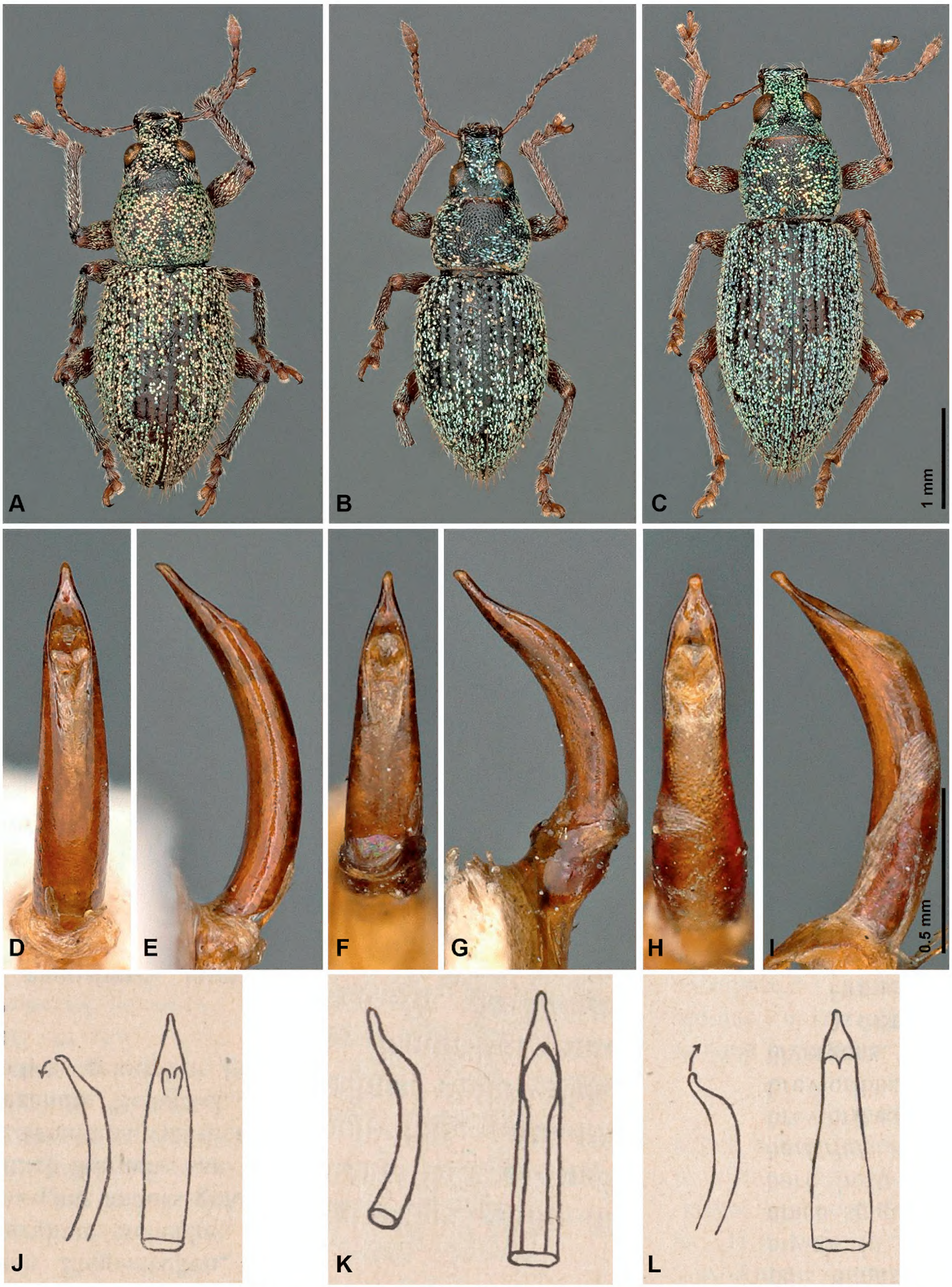


Fig. 3: Fronto-lateral view of *Echinodera bryneri* spec. nov., drawing by Christian Roesti.



Figs 4A–B: Habitus dorsal/lateral of *Echinodera bryneri* spec. nov., and **4C–D**: *E. romanboroveci* (males).

Figs 5A–D: Penis of *Echinodera bryneri* spec. nov., ventral and lateral views. **5F–G**: Female genitalia of *E. bryneri* spec. nov., **5E**: Spermatheca. **5F**: Spiculum ventrale **5G**: Gonocoxite. **Figs 5H–K**: Penis of *E. romanboroveci*, ventral and lateral views. **5L–N**: Ditto female genitalia. **5L**: Spermatheca. **5M**: Spiculum ventrale. **5N**: Gonocoxite (Photos: C. Germann).



Figs 6A–C: Habitus of males of **6A**: *Sciaphobus paliuri* lectotype. **6B**: *S. curvimanus* holotype. **6C**: *S. polydrosinus* lectotype. **Figs 6D–I**: Peneses dorsal and lateral of **6D–E**: *S. paliuri*. **6F–G**: *S. curvimanus*. **6H–I**: *S. polydrosinus* (Photos: C. Germann). **6J–L**: Ditto taken from Apfelbeck (1922).

the Naturhistorisches Museum Basel), including type specimens collected by Kurt Hermann Gustav Otto Noesske (1873–1946) as written by Apfelbeck (1922) in his first descriptions, the opportunity was given to revise these specimens when a series of an undetermined *Sciaphobus* was collected during the present excursion.

The examination of the available specimens showed, that specimens from all three somewhat enigmatic taxa were present. According to article 74.7.3 of the Code of Zoological Nomenclature (ICZN 1999), the lectotypes and paralectotypes of *Sciaphobus paliuri* and *S. polydrosinus* are selected based on the specimens and characters indicated and shown below.

The syntypes of *S. paliuri* Apfelbeck, 1908 (page 532 with the only finding locality indicated «Virpazar»). 1 ♂ «Sciaphobus paliuri [handwritten] // Apflb. Virvazar [sic!] // red label Lectotype *Sciaphobus paliuri* Apfelbeck, 1908 sel. C. Germann 2019» with last two ventrites, spiculum gastrale and penis mounted on a different label. Paralectotypes: 1 ex. «Apflb. Virvazar [sic!] // paliuri Apf [handwritten] // Sammlung Stöcklein // red label Paralectotype *Sciaphobus paliuri* Apfelbeck, 1908 sel. C. Germann 2019". 3 ex. „Apflb. Virpazar" // ex Orig. Samlg. J. Breit Wien // red labels Paralectotype *Sciaphobus paliuri* Apfelbeck, 1908 sel. C. Germann 2019". 1 ex. „Apflb. Virpazar // paliuri typ. ♀ Apf [handwritten] // Sammlung Stöcklein // red label Paralectotype *Sciaphobus paliuri* Apfelbeck, 1908 sel. C. Germann 2019". 1 ex. „Apflb. Virpazar // ex Orig. Samlg. J. Breit Wien // Sciaphobus paliuri Apfb. // red label Paralectotype *Sciaphobus paliuri* Apfelbeck, 1908 sel. C. Germann 2019". 1 ex. „Apflb. Virpazar // ex Orig. Samlg. J. Breit Wien // Sciaphobus paliurii [sic!] Apfb. Co-type // red label Paralectotype *Sciaphobus paliuri* Apfelbeck, 1908 sel. C. Germann 2019". And the following additional non-type material in the G. Frey collection was examined: 8 ex. «Apflb. Pristan». 2 ex. «Rjeka Monteneg.». 2 ex. «Mustajbeg Rjeka». 2 ex. «Rjeka».

The holotype of *Sciaphobus curvimanus* Apfelbeck, 1922: 1 ♂ with penis, last 3 ventrites and spiculum gastrale mounted on a separate label «Küste» [handwritten] // *Sciaphobus curvimanus* n. sp. Typ. Apf. [all handwritten] // Sammlung Apfelbeck // Holotype *Sciaphobus curvimanus* Apfelbeck, 1922 ett. C. Germann 2019" This data fit perfectly with the given ones on page 68 from Monenegro „...in einem einzigen Exemplare, wahrscheinlich im Küstengebiet, gesammelt..." [collected in one single specimen, likely from the coastal area].

The syntypes of *Sciaphobus polydrosinus* Apfelbeck, 1922 (page 69 with the localities Cetinje and Rjeka), where the lectotype: 1 ♂ with penis and 5 ventrites mounted on a separate label „Apflb. Cetinje // polydrosinus n. sp. det. Apflb. [partly handwritten] // red label Lectotype *Sciaphobus polydrosinus* Apfelbeck, 1922 sel. C. Germann 2019", and the following paralectotypes are selected: 3 ex. „Apflb. Cetinje // Sammlung Apfelbeck // red labels Paralectotype *Sciaphobus polydrosinus* Apfelbeck, 1922 sel. C. Germann 2019». 1 ex. Ditto with additional label «Sciaphobus polydrosinus Cotype Apf.». 1 ex. «Rjeka // Sammlung Apfelbeck // polydrosinus m. [= mihi] [handwritten] // red label Paralectotype *Sciaphobus polydrosinus* Apfelbeck, 1922 sel. C. Germann 2019».

Studying all specimens of the three species allowed to confirm the value of the given characters by Apfelbeck (1922), namely: i) the absence of any femoral teeth in the case of *Sciaphobus paliuri*; ii) all femora are conspicuously teethed in *S. curvimanus*; iii) tiny tooth on profemora and mostly stronger teeth on meso- and metafemora in *S. polydrosinus*, furthermore in that latter species the more elongate antennomeres and the more protruding eyes are reliable characters. The dorsal and lateral shapes of the peneses, and the shape of their tips, are furthermore suitable for discrimination. There the provided Figs 6A–L illustrate these differences partly already drawn by Apfelbeck (1922), and again included here (Figs 6J–L). In *S. paliuri* the medianlobus is parallel sided in dorsal view, weakly bowed in lateral view and the tip more regularly attenuated with a hook -like tip. In *S. curvimanus* the medianlobus is more triangularly shaped, stronger bowed with a more abruptly attenuated, rounded tip. In *S. polydrosinus* the medianlobus is constricted in its middle, and broadly rounded before the tip, in lateral view thick with an almost pointed tip. On the other side, some characters used for species discrimination did not proof to be suitable for a reliable differentiation, namely i) the rather variable shape of pronotum and body, these vary within the sexes, but even more between them; more than between the three species investigated; ii) the same with the scales which show the whole spectre from greenish to pearl-like lustre, these furthermore are varying in shape from narrow setiform to broader and almost circular.

Records of remarkable species

Curculionidae, Molytinae

Plinthus squalidus gerlii Boheman, 1842

At present recorded from Croatia and Bosnia-Herzegovina (Kippenberg 1981, 1982, Meregalli 1985). The characteristic vestiture of broad scales on elytra, pronotum and sternites can be used for a reliable determination (Kippenberg 1981). Based on the appressed broad scale-like hairs on the sternites, the other subspecies *P. squalidus purkynei* Kippenberg, 1981 with narrow and detached hairs, which is known from the Durmitor

massif in Montenegro, can be excluded. The single specimen (Fig. 7A) was found under a stone at the margin of a *Fagus* forest on Lovcén (locality nr 6). As the Lovcén massif is a continuation of the narrow mountain chain close to the coast reaching from Croatia to Montenegro, and *P. squalidus gerlii* seems to follow this chain, this present discovery fits well in the hitherto known distribution and enlarges it towards the Southeast.

Leiosoma komovicum Pedroni, 2018

This species was recently described based on one couple from the Komovi mountains in the Durmitor massif in Montenegro (Pedroni 2018). The species derives in its habitus strongly from all other species of the *Leiosoma cribrum*-group, which was also mentioned by the author. We collected three specimens of *L. komovicum*, in a *Fagus* forest. The exact finding place (FO 19) was in close vicinity of old *Fagus sylvatica* trees and consisted of leaf litter between flowering *Anemone nemorosa* and *A. apennina* (Figs 8A–B) which might be both suitable candidates of host plants, as mostly Ranunculaceae are mentioned as host plants, and are the only ones where larvae were observed up to now (*Ranunculus* spp., *Anemone nemorosa* in the case of *L. deflexum*, Scherf 1964). As the female is not yet described in detail, we provide as a supplement to the description good photos of both sexes (Figs 9A–H), additional photos of the penis (Figs 9C–E) and give here a description of the sclerotized female genitalia. The spiculum ventrale (or sternite VIII) (Fig. 9F) shows a biforked plate, the apodeme is 1.5 times longer than the plate, with its base broadened. The spermatheca (Fig. 9G) has a long, almost straight cornu, the corpus is bell-shaped with both, nodulus and ramus reduced. The gonocoxite is weakly sclerotized, simply bow-shaped with rather robust, somewhat flattened stylus at apex (Fig. 9H).

Fig. 7A: Habitus of *Plinthus squalidus gerlii*, female from Lovcén. **7B**: *Stomodesops schaufussi* male from Lovcén (Photos: C. Germann).

Figs 8A: Habitat in general and **8B**: detail with *Anemone* spp., where *Leiosoma komovicum* was sifted at locality 19 near Ljevišta (Photos: C. Germann).

Curculionidae, Bagoinae

Bagous spp.

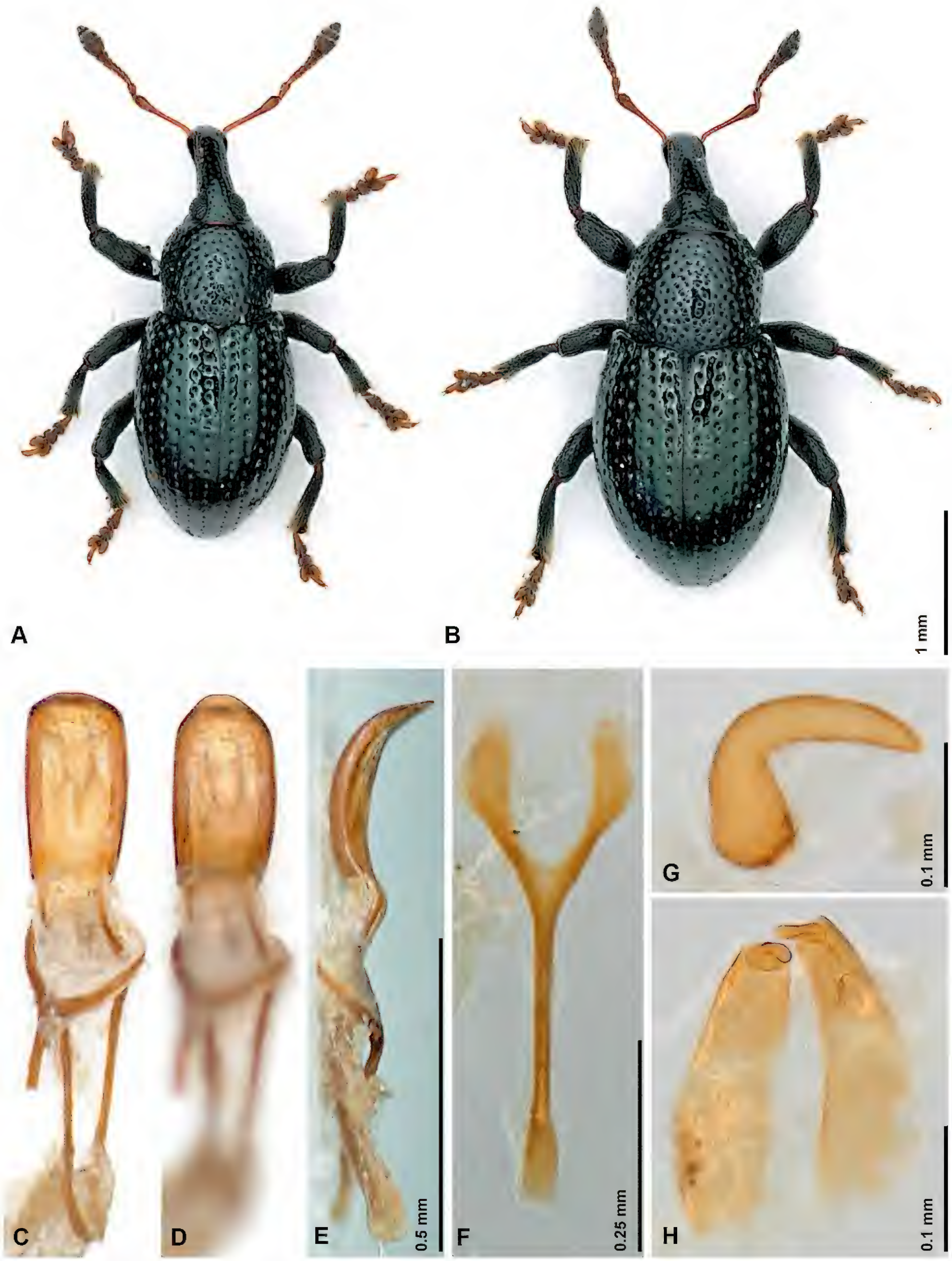
A remarkable number of six species of these mostly underwater living species could be collected along the rather unspectacular shore of a pond at locality 16 (Fig. 2D), namely *Bagous bagdatensis* (Pic, 1904), *B. lutulentus* Gyllenhal, 1813, *B. perparvulus* Rosenhauer, 1856, *B. puncticollis* Boheman, 1845, *B. rufimanus* Péricart, 1989, and *B. subcarinatus* (Gyllenhal, 1836). The quickly dropping water level of this small lake allowed to beat against mud and drying water plants, which kept hanging on shrubs and branches towards the shore.

Curculionidae, Curculioninae

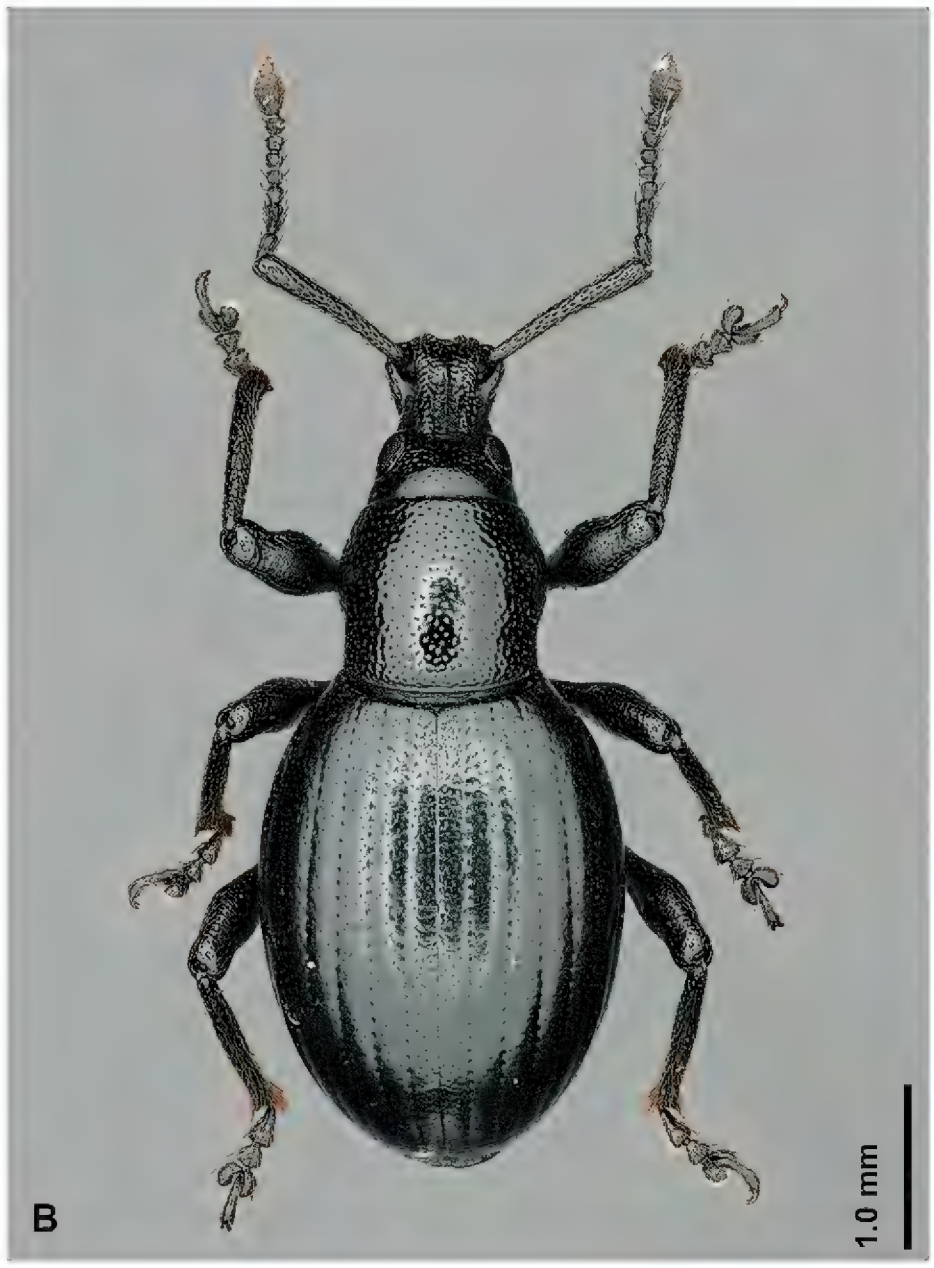
Archarius anatoliensis Voss, 1962

First record in Europe in 2016 from the Greek island Lesbos (Germann & Braunert 2016). Now from Montenegro in 14 specimens from 6 localities (11, 25, 27, 10, 18, 28), which is 700 km distant from Lesbos. This definitely shows an up-to-date north-western spreading of the species.

As some of the hereby reported species were hardly ever pictured and are rarely found or mentioned in literature, we furthermore provide a picture gallery of the following species: *Stomodesops schaufussi* (Miller, 1863) (Fig. 7B), *Otiorhynchus longipennis* Stierlin, 1861 (Fig. 10A), *Otiorhynchus praecellens pentheri* Reitter, 1913 (Fig. 10B), and both, rather dimorphic, sexes of *Polydrusus brevipes* (Kiesenwetter, 1864) (Figs 10C–D).



Figs 9A–B: Habitus of *Leiosoma komovicum*. **9A:** male. **9B:** female. **9C–H:** Genitalia. **9C–E:** Penis **9C:** ventral view. **9D:** tip in ventral view. **9E:** lateral view. **9F:** Spiculum ventrale. **9G:** Spermatheca. **9H:** Gonocoxites. (Photos: C. Germann).



Figs 10A–C: Rarely depicted Curculionidae from Montenegro: **10A**: *Otiorhynchus longipennis*. **10B**: *Otiorhynchus praecellens pentheri* **10C–D**: *Polydrusus brevipes* male, ditto female (Photos: C. Germann).

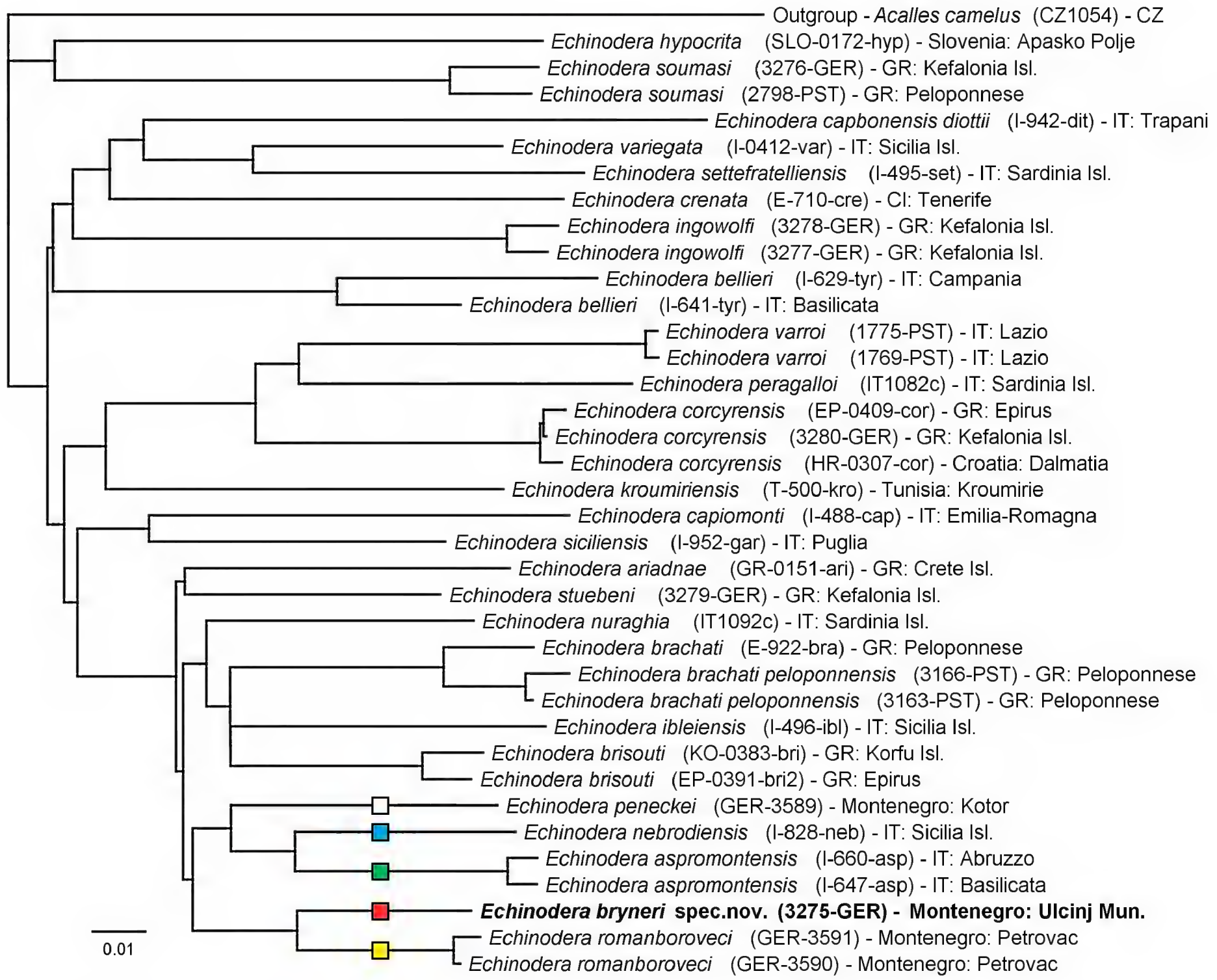

Outgroup - *Acalles camelus* (CZ1054) - CZ
Echinodera hypocrita (SLO-0172-hyp) - Slovenia: Apasko Polje
Echinodera soumasi (3276-GER) - GR: Kefalonia Isl.
Echinodera soumasi (2798-PST) - GR: Peloponnese
Echinodera capbonensis diottii (I-942-dit) - IT: Trapani
Echinodera variegata (I-0412-var) - IT: Sicilia Isl.
Echinodera settefratelliensis (I-495-set) - IT: Sardinia Isl.
Echinodera crenata (E-710-cre) - CI: Tenerife
Echinodera ingowolfi (3278-GER) - GR: Kefalonia Isl.
Echinodera ingowolfi (3277-GER) - GR: Kefalonia Isl.
Echinodera bellieri (I-629-tyr) - IT: Campania
Echinodera bellieri (I-641-tyr) - IT: Basilicata
Echinodera varroi (1775-PST) - IT: Lazio
Echinodera varroi (1769-PST) - IT: Lazio
Echinodera peragalloi (IT1082c) - IT: Sardinia Isl.
Echinodera corcyrensis (EP-0409-cor) - GR: Epirus
Echinodera corcyrensis (3280-GER) - GR: Kefalonia Isl.
Echinodera corcyrensis (HR-0307-cor) - Croatia: Dalmatia
Echinodera kroumiriensis (T-500-kro) - Tunisia: Kroumirie
Echinodera capiomonti (I-488-cap) - IT: Emilia-Romagna
Echinodera siciliensis (I-952-gar) - IT: Puglia
Echinodera ariadnae (GR-0151-ari) - GR: Crete Isl.
Echinodera stuebeni (3279-GER) - GR: Kefalonia Isl.
Echinodera nuraghia (IT1092c) - IT: Sardinia Isl.
Echinodera brachati (E-922-bra) - GR: Peloponnese
Echinodera brachati peloponnensis (3166-PST) - GR: Peloponnese
Echinodera brachati peloponnensis (3163-PST) - GR: Peloponnese
Echinodera ibleiensis (I-496-ibl) - IT: Sicilia Isl.
Echinodera brisouti (KO-0383-bri) - GR: Korfu Isl.
Echinodera brisouti (EP-0391-bri2) - GR: Epirus
Echinodera peneckei (GER-3589) - Montenegro: Kotor
Echinodera nebrodiensis (I-828-neb) - IT: Sicilia Isl.
Echinodera aspromontensis (I-660-asp) - IT: Abruzzo
Echinodera aspromontensis (I-647-asp) - IT: Basilicata
***Echinodera bryneri* spec.nov. (3275-GER) - Montenegro: Ulcinj Mun.**
Echinodera romanboroveci (GER-3591) - Montenegro: Petrovac
Echinodera romanboroveci (GER-3590) - Montenegro: Petrovac
0.01

Fig. 11: Jukes-Cantor corrected Neighbor-Joining tree of west Balkans *Echinodera* including *Echinodera bryneri* spec. nov. The five coloured squares match with the colours of the geographic distribution map (Fig. 12).

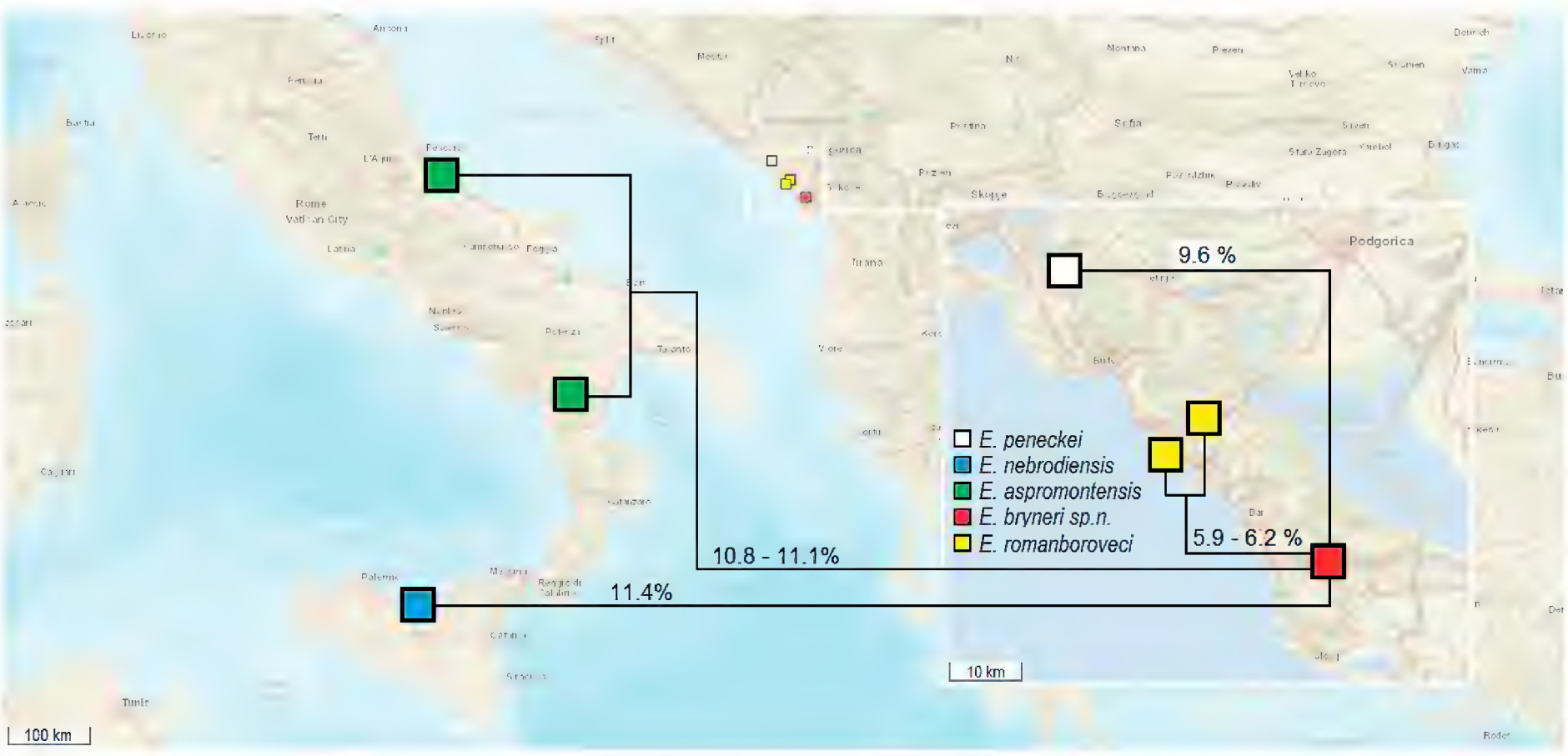


Fig. 12: Geographical map of Western Balkans and Italy with genetic distances (pdistance, uncorrected) between *Echinodera bryneri* spec. nov. and its sister species *E. romanboroveci* and other congeners. The finding spot of the new species in Montenegro is shown 10 x enlarged (right square).

Molecular analyses

The molecular analysis clearly confirms the species status of *Echinodera bryneri* spec. nov. from the molecular perspective. The Neighbor-Joining (NJ) tree is provided in Fig. 11. The distribution map with *E. bryneri* and its congeners in focus is provided in Fig. 12, the genetic distances listed were taken from the distance matrix (Appendix 5), uncorrected p-distance values are listed.

The molecular closest congeners available in the dataset and their uncorrected p-distance values to ***E. bryneri*** are: ***E. romanboroveci*** Stüben, 1998 (5.9 to 6.2 % from Montenegro), ***E. aspromontensis*** Stüben, 2008 (10.8 to 11.1 % from Italy), ***E. nebrodiensis*** Stüben, 2003 (11.4 % from Sicily island, Italy), ***E. peneckei*** Stüben, 1998 (9.6 % from Montenegro).

These findings regarding the interspecific genetic distances are in concordance with the MWI dataset: The average p-distance value for continental endemic *Echinodera* species is ~**11 %** (Schütte et al. 2022, in preparation). The smallest currently known interspecific p-distance value for continental endemic *Echinodera* species is **5.8 %** for *E. cognita* from Spain (e-490-cog/ GU213684) vs. *E. incognita* from Spain (e-594-inc/ GU213709), both not included in the NJ tree. With 5.9–6.2 % genetic distance between *E. bryneri* and *E. romanboroveci* is clearly on the lower end of the scale, but the morphological characters leave no doubt about its species status as well. For all currently known closely related species COI sequence data is available and was used in the molecular analyses.

Discussion

Our present contribution adds the remarkable number of 108 further species to the fauna of Montenegro, among them one species new to science (*Echinodera bryneri* spec. nov.). This discovery is not unusual. Despite of the thorough dedication by Stüben (2018) to this group, the same author and some of us just recently went on finding new species in Greece (Stüben & Kramp 2019, Germann & Schütte 2021), therefore future investigations will certainly lead to more such discoveries. This present effort in continuing the exploration of the remarkably rich biodiversity in the Balkans follows recent additions by Pešić (2006) and Szénási (2017). The determination of several species collected during the present excursion was difficult, and in the case of *Sciaphobus* only the direct comparison with specimen from the museum collection was successful, which led furthermore to the designation of lectotypes, and the re-evaluation of the morphological characters used for species discrimination. For future studies, the species presented here in the photo galleries might be helpful, as in general only old keys with scarce illustrations are available.

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Appendix 1 - species list

Species list of all 203 species of Curculionoidea recorded from Montenegro. Locality no. = refers to the numbered localities given; ME = the exclamation mark (!) indicates a new record for the fauna of Montenegro.

Sub-Family/genus/species	**locality no.**	**ME**
Anthribidae		
Pseudeuparius centromaculatus (Gyllenhal, 1833)	2	!
Apionidae		
Catapion seniculus (Kirby, 1808)	15	!
Cyanapion gyllenhali (Kirby, 1808)	26	!
Eutrichapion ervi (Kirby, 1808)	15	!
Eutrichapion punctiger (Paykull, 1792)	9, 10, 11, 14, 22, 26, 28	!
Eutrichapion viciae (Paykull, 1800)	10, 14, 26	!
Hemitrichapion pavidum (Germar, 1817)	3	!
Holotrichapion gracilicolle (Gyllenhal, 1839)	14, 22, 26	!
Holotrichapion ononis (Kirby, 1808)	25	!
Holotrichapion pisi (Fabricius, 1801)	2, 11, 14, 25	!
Ischnopterapion fallens (Marseul, 1888)	20	!
Ischnopterapion loti (Kirby, 1808)	11, 20, 24, 25, 26	!
Kalcapion semivittatum (Gyllenhal, 1833)	2, 12	
Melanapion minimum (Herbst, 1797)	4	!
Oxystoma pomonae (Fabricius, 1798)	11	!
Perapion violaceum (Kirby, 1808)	4, 12, 14	
Protapion nigritarse (Kirby, 1808)	20, 23	
Protapion fulvipes (Geoffroy, 1785)	4	
Protapion laevicolle (Kirby, 1811)	26	!
Taeniapion rufescens (Gyllenhal, 1833)	2	!
Protapion trifolii (Linnaeus, 1768)	26, 28	!
Protapion varipes (Germar, 1817)	20	!
Protapion woerzi (Wagner, 1904)	20	
Rhopalapion longirostre (Olivier, 1807)	2	
Squamapion atomarium (Kirby, 1808)	26	
Trichopterapion holosericeum (Gyllenhal, 1833)	3, 11, 15, 18, 24, 25, 27, 28	!
Attelabidae		
Apoderus coryli (Linné, 1758)	5	!
Attelabus nitens (Scopoli, 1763)	11, 25	
Curculionidae		
Bagoinae		
Bagous bagdatensis (Pic, 1904)	16	
Bagous lutulentus Gyllenhal, 1813	16	
Bagous perparvulus Rosenhauer, 1856	16	!
Bagous puncticollis Boheman, 1845	16	!
Bagous rufimanus Péricart, 1989	16	
Bagous subcarinatus (Gyllenhal, 1836)	16	!

Sub-Family/genus/species	locality no.	ME
Baridinae		
Aulacobaris lepidii (Germar, 1823)	7	!
Ceutorhynchinae		
Calosirus apicalis (Gyllenhal, 1827)	26	!
Ceutorhynchus cochleariae (Gyllenhal, 1813)	12	!
Ceutorhynchus contractus (Marsham, 1802)	11, 15, 22, 24	!
Ceutorhynchus erysimi (Fabricius, 1787)	11	!
Ceutorhynchus fulvitarsis Gougelet & Brisout de Barneville, 1860	11, 12	!
Ceutorhynchus leprieuri C. N. F. Brisout de Barneville, 1881	11	!
Ceutorhynchus pectoralis Weise, 1895	9, 10, 15	!
Ceutorhynchus sulcicollis (Paykull, 1800)	12, 14	!
Ceutorhynchus unguicularis C. G. Thomson, 1871	3, 25	!
Datonychus arquata (Herbst, 1795)	16	!
Datonychus melanostictus (Marsham, 1802)	3	!
Glocianus distinctus (C. N. F. Brisout de Barneville, 1870)	26	!
Glocianus pilosellus (Gyllenhal, 1837)	14	!
Hadroplontus trimaculatus (Fabricius, 1775)	2	!
Mogulones diecki (C. N. F. Brisout de Barneville, 1870)	5, 7	!
Mononychus punctumalbum (Herbst, 1784)	20, 21, 28	!
Nedyus quadrimaculatus (Linné, 1758)	19	
Oprohinus consputus (Germar, 1823)	14, 26	!
Oprohinus suturalis (Fabricius, 1775)	10, 22, 26	!
Rhinoncus perpendicularis (Reich, 1797)	12, 16	!
Tapeinotus sellatus (Fabricius, 1794)	16	!
Trichosirocalus horridus (Panzer, 1801)	11, 22	!
Trichosirocalus troglodytes (Fabricius, 1787)	11	!
Zacladus exiguus (Olivier, 1807)	20	!
Cossoninae		
Cotaster cuneipennis (Aubé, 1850)	19	
Cryptorhynchinae		
Acalles camelus (Fabricius, 1792)	19	
Acalles fallax Boheman, 1844	19	
Acalles papei (A. Solari & F. Solari, 1905)	6	
Acallocrates fasciatus Colonnelli 1980	6, 7	
Echinodera graeca Caldara, 1973	7	
Echinodera hypocrita (Boheman, 1837)	19	
Echinodera major (A. Solari & F. Solari, 1907)	4, 5	
Echinodera peneckei Stüben, 1998	5	
Echinodera romanboroveci Stüben, 1998	3, 4, 6, 13, 28	
Echinodera bryneri spec. nov.	3, 22, 25	!

Sub-Family/genus/species	locality no.	ME
Curculioninae		
Acalyptus carpini (Fabricius, 1792)	4	!
Anthonomus chevrolati s. str. Desbrochers des Loges, 1868	3	
Antonomus kirschi (Desbrochers des Loges, 1868)	3	
Anthonomus pedicularius (Linnaeus, 1758)	3, 4	!
Anthonomus pomorum (Linnaeus, 1758)	3, 14	
Anthonomus rubi (Herbst, 1795)	18	
Archarius anatoliensis Voss, 1962	10, 11, 18, 25, 27, 28	!
Bradybatus fallax (Gerstaecker, 1860)	3	
Bradybatus seriesetosus Petri, 1912	4, 22	!
Cionellus gibbifrons (Kiesenwetter, 1852)	9	!
Cionus balianii (F. Solari, 1932)	3	!
Cleopomiarus distinctus (Boheman, 1845)	14, 27	!
Cleopomiarus medius (Desbrochers des Loges, 1893)	25	
Cleopomiarus meridionalis H. Brisout de Barneville, 1863	25	
Cleopus solani (Fabricius, 1792)	21	
Curculio pellitus (Boheman, 1843)	18	
Gymnetron aper Desbrochers des Loges, 1892	11	!
Gymnetron stimulosum (Germar, 1821)	25, 26	
Mecinus pyraster (Herbst, 1795)	10, 11, 12, 26	!
Miarus stoeckleini Franz, 1947	2, 14, 22, 25	!
Orchestes fagi (Linné, 1758)	19	
Orchestes pilosus (Fabricius 1781)	28	!
Pachytychius sparsutus Olivier, 1807)	3	!
Rhinusa asellus (Gravenhorst, 1807)	16, 22	!
Rhinusa bipustulata (Rossi, 1792)	15, 25	
Rhinusa moroderi (Reitter, 1906)	22	!
Rhinusa tetra (Fabricius, 1792)	2, 25, 26	
Sibinia pellucens (Scopoli, 1772)	11	
Sibinia pyrrhodactyla (Marsham, 1802)	11, 27, 28	!
Sibinia viscariae (Linnaeus, 1760)	11	
Smicronyx alboquamosus Wollaston, 1854	3	!
Smicronyx jungermanniae (Reich, 1797)	3	!
Smicronyx reichii (Gyllenhal, 1835)	12	!
Smicronyx syriacus Faust, 1887	14, 20, 26	!
Tychius aureolus Kiesenwetter, 1852	11	
Tychius balcanicus (Caldara 1990)	9	!
Tychius bicolor (C.N.F. Brisout de Barneville, 1863)	21	!
Tychius caldarai Dieckmann, 1986	26	
Tychius cuprifer (Panzer, 1799)	20, 28	
Tychius kulzeri Penecke, 1934	3, 25	

Sub-Family/genus/species	locality no.	ME
Tychius *picirostris* (Fabricius, 1787)	12, 26	
Tychius pusillus Germar, 1842	11, 23, 25, 26	
Tychius rufipennis C. N. F. Brisout de Barneville, 1863	10	!
Tychius schneideri (Herbst, 1795)	25	!
Tychius squamulatus Gyllenhal, 1835	3, 25, 26	
Tychius stephensi Schoenherr, 1835	19, 20	
Tychius thoracicus (Boheman, 1843)	10, 11	!
Tychius tibialis Boheman, 1843	10, 11, 15, 20	
Entiminae		
Argoptochus bisignatus (Germar, 1823)	11, 14	
Brachysomus hirtus (Boheman, 1845)	10, 19, 24, 25	!
Coelositona limosus (Rossi, 1792)	1	!
Dodecastichus dalmatinus (Gyllenhal, 1834)	2, 5, 17	
Dodecastichus heydenii (Stierlin, 1861)	2, 3, 4, 5, 13, 17, 18, 25, 28	
Limatogaster rugicollis (Germar, 1817)	5, 6	
Limatogaster sp.	17	
Limatogaster tumidipes (Stierlin, 1861)	3, 4, 19, 22	
Otiorhynchus aurifer Boheman, 1842	2, 17	
Otiorhynchus corruptor s. str. (Host, 1790)	2, 4, 17, 28	
Otiorhynchus cribricollis (Gyllenhal, 1834)	2	!
Otiorhynchus longipennis Stierlin, 1861	2, 3, 17, 22, 26, 28	
Otiorhynchus maxillosus Gyllenhal, 1834	3, 4, 5	
Otiorhynchus perdix (Olivier, 1807)	2, 3, 4, 5, 9, 10, 17, 18, 22, 25	
Otiorhynchus praecellens pentheri Reitter, 1913	3, 4	
Otiorhynchus rhacusensis s. str. Germar, 1822	2, 4, 16, 27	
Otiorhynchus truncatus Stierlin, 1861	6	
Phyllobius argentatus s. str. (Linnaeus, 1758)	3, 4, 13, 15, 16, 20, 25	
Phyllobius betulinus s. str. (Bechstein & Scharfenberg, 1805)	10, 11, 14	
Phyllobius dispar L. Redtenbacher, 1847	4, 10, 15, 25	
Phyllobius maculicornis Germar, 1823	15	
Phyllobius montanus Miller, 1862	2, 4, 27, 28	
Phyllobius oblongus (Linné, 1758)	4, 11, 15, 18, 22, 24	
Phyllobius pallidus (Fabricius, 1792)	3, 4	
Polydrusus cervinus (Linné, 1758)	24, 25, 27, 28	
Polydrusus mollis (Strøm, 1768)	1, 2, 6, 8, 19	
Polydrusus picus (Fabricius, 1792)	1, 2, 6, 9, 11, 13, 15, 27, 28	
Polydrusus pterygomalis Boheman, 1840	10, 11, 26	
Polydrusus tibialis (Gyllenhal, 1834)	12, 20, 21	
Polydrusus brevipes (Kiesenwetter, 1864)	1, 2, 3, 4, 10, 11, 14, 15, 18, 20, 24, 25, 27, 28	
Polydrusus viridicinctus Gyllenhal, 1834	28	
Sciaphobus paliuri Apfelbeck, 1908	14, 26, 28	
Sciaphobus curvimanus Apfelbeck, 1922	20	
Sitona cylindricollis Fåhraeus, 1840	28	

Sub-Family/genus/species	**locality no.**	**ME**
Sitona humeralis (Stephens, 1831)	9, 22	
Sitona lineatus (Linnaeus, 1758)	9	
Sitona ophtalmicus Desbrochers, 1869	11, 26	!
Sitona striatellus Gyllenhal, 1834	5	!
Sitona verecundus (Rossi, 1790)	20, 22	
Sitona waterhousei Walton, 1846	26	
Stomodesops schaufussii (Miller, 1863)	7	!
Hyperinae		
Brachypera audax (Faust, 1887)	23	!
Coniatus tamarisci (Fabricius, 1787)	21	!
Hypera conmaculata (Herbst, 1795)	12, 16, 17, 22, 28	
Hypera contaminata (Herbst, 1795)	17	
Hypera melancholica (Fabricius, 1792)	14	
Hypera postica (Gyllenhal, 1813)	8	
Hypera rumicis (Linnaeus, 1758)	20	
Limobius borealis s. str. (Paykull, 1792)	9, 10, 11, 27	!
Lixinae		
Cleonis pigra (Scopoli, 1763)	6	
Lixus angustus (Herbst, 1795)	2, 22	!
Lixus filiformis (Fabricius, 1781)	10	
Lixus linearis Olivier, 1807	12	!
Lixus ochraceus (Boheman, 1842)	28	!
Lixus punctiventris (Boheman, 1835)	10	
Lixus vilis (Rossi, 1790)	1	!
Lixus brevipes Brisout de Barneville, 1866	26	
Pseudocleonus grammicus (Panzer, 1789)	8	!
Rhinocyllus conicus (Froelich, 1792)	10	
Mesoptilinae		
Magdalis armigera (Geoffroy, 1785)	12, 20, 22	!
Magdalis fuscicornis (Desbrochers des Loges, 1870)	15	!
Molytinae		
Aparopion costatum (Fåhraeus, 1843)	3, 4, 7, 25	!
Leiosoma komovicum Pedroni, 2018	19	
Plinthus squalidus gerlii Boheman, 1842	6	!
Scolytinae		
Phloetribus hercegovinensis (Seitner, 1920)	3	!
Scolytus pygmaeus (Fabricius, 1787)	20	!
Scolytus rugulosus (P.W.J. Müller, 1818)	25	
Xylocleptes bispinus (Duftschmid, 1825)	4	
Dryophthoridae		
Sphenophorus meridionalis (Gyllenhal, 1838)	20	!
Sphenophorus parumpunctatus (Gyllenhal, 1838)	16	!

Sub-Family/genus/species	locality no.	ME
Erirhinidae		
Tanysphyrus lemnae (Paykull, 1792)	16	!
Thryogenes festucae (Herbst, 1795)	16	!
Nanophyidae		
Allomalia quadrivirgata (A. Costa, 1863)	21	!
Corimalia pallida (Olivier, 1807)	21	!
Dieckmanniellus chevrieri (Boheman, 1845)	3, 12, 20, 28	!
Dieckmanniellus nitidulus (Gyllenhal, 1838)	20	!
Nanodiscus transversus (Aubé, 1850)	28	!
Nanomimus circumscriptus (Aubé, 1864)	12, 20	!
Nanophyes brevis Boheman, 1845	28	!
Nanophyes marmoratus (Goeze, 1777)	12, 28	!
Rhynchitidae		
Neocoenorrhinus germanicus (Herbst, 1797)	16	!
Neocoenorrhinus interpunctatus (Stephens, 1831)	20	!
Neocoenorrhinus minutus (Herbst, 1797)	3, 18, 22, 25	
Rhodocyrtus cribripennis Desbrochers des Loges, 1869	2	!
Rhynchites auratus (Scopoli, 1763)	4	!
Tatianaerhynchites aequatus (Linnaeus, 1767)	3, 4, 18, 25	

Appendix 2 - collecting data and voucher numbers

Collecting data and voucher numbers for the material used in the molecular analysis is provided below, alphabetically sorted by species name. DNA extracts are stored either at the ZFMK Biobank in Bonn or at the SDEI in Müncheberg. Often remaining or additional tissue samples of the sequenced specimens are available as well. Sample ID is called «Collector´s No» within CURCI. Dry collection of ZFMK/CURCI processed samples are located at the ZFMK Bonn, Germany. Dry collection of SDEI/CURCI processed samples are located at Natural History Museum in Basel (NMB).

Acalles camelus (Fabricius, 1792)
Location: Czech Republic, SE Moravia (UH), Lopenik, Bilé Karpaty Mts., collected on: *Fagus*, 15-May-2009, 727 m, 48°56'00» 17°46'00», leg. Kresl, P., det. Kresl, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: CZ1054 / 9637; Tissue No / DNA No: ZFMK-TIS-cCZ1054 / ZFMK-DNA-0112704615; COI GenBank Accession No: KF680229

Echinodera ariadnae Bahr & Bayer, 2005
Location: Greece, Crete Isl. West, Levka Ori, Imbros, above the Imbros Gorge, collected on: *Quercus*, 02-Oct-2006, 900m, N35°14'51» E24°10'30», leg. Bahr, F. & Bayer, C., det. Bahr, F. & Bayer, C., dry collection: CURCI at ZFMK; Sample ID / Biobank No: GR-0151-ari / 8786; Tissue No / DNA No: ZFMK-TIS-cGR0151 / ZFMK-DNA-0100400173; COI GenBank Accession No: EU286479

Echinodera aspromontensis Stüben, 2008
Location: Italy, Basilicata, Monte Pollino, 17 km N of Rotonda, N of Episcopia, collected on: *Quercus*, *Castanea*, 8-Jul-2008, 894 m, N40°05'55» E16°07'13», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-647-asp / 9248; Tissue No / DNA No: ZFMK-TIS-cI647 / ZFMK-DNA-0100404242; COI GenBank Accession No: GU987985

Echinodera aspromontensis Stüben, 2008
Location: Italy, Abruzzo, 28 km SE of Pescara, S. Vito, collected on: *Quercus*, 17-Jul-2008, 79 m, N42°17'30» E14°27'35», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-660-asp / 9261; Tissue No / DNA No: ZFMK-TIS-cI660 / ZFMK-DNA-0100404886; COI GenBank Accession No: GU987992

Echinodera bellieri (Reiche, 1860)
Location: Italy, Campania, Cilento, 14 km SW of Vallo d. Lucania, Marina di Ascea, collected on: *Quercus ilex*, 30-JUN-2008, 13 m, N40°07'42» E15°10'53», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-629-tyr / 9230; Tissue No / DNA No: ZFMK-TIS-cI629 / ZFMK-DNA-0100404311; COI GenBank Accession No: GU213711

Echinodera bellieri (Reiche, 1860)
Location: Italy, Basilicata, Monte Pollino, 4 km SE of Rotonda, Zarafa, collected on: *Quercus ilex*, 07-JUL-2008, 677 m, N39°56'33» E16°04'28», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-641-tyr / 9242; Tissue No / DNA No: ZFMK-TIS-cI641 / ZFMK-DNA-0100404902; COI GenBank Accession No: GU987981

Echinodera brachati Stüben, 2002
Location: Greece, Peloponnese, Mt. Taygetos W, Saidona E, collected on: *Quercus*, *Onosma*, *Cistus*, *Salvia fruticosa*, broom, 25-Apr-2009, 800 m, N36°52'59» E22°17'25», leg. Bahr, F., Bayer, C., Brunner, J. & Bueche, B. det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: E-922-bra / 9539; Tissue No / DNA No: ZFMK-TIS-cE922 / ZFMK-DNA-0100405279; COI GenBank Accession No: GU213764

Echinodera brachati peloponnensis Stüben, 2019
Location: Greece, Peloponnese, Arkadia: Kosmas, collected on: *Astragalus*, 9-Aug-2018, 1151 m, N37°05'45» E22°44'28», leg. Stüben, P., det. Stüben, P., dry collection: CURCI/SDEI at NMB; Sample ID: 3163-PST; DNA No: SDEI-DNA-3163-PST; COI GenBank Accession No: MK347695

Echinodera brachati peloponnensis Stüben, 2019
Location: Greece, Peloponnese, Arkadia, N Kosmas: near Moni Elonis, collected on: *Quercus*, 11-Aug-2018, 427 m, N37°08'42» E22°45'03», leg. Stüben, P., det. Stüben, P., dry collection: CURCI/SDEI at NMB; Sample ID: 3166-PST; DNA No: SDEI-DNA-3166-PST; COI GenBank Accession No: MK347697

Echinodera brisouti (Reitter, 1885)
Location: Greece, Korfu Isl., 8 km S of Kerkyra, Mt. Pantokratoras NW of Makrata, collected on: *Quercus*, *Arbutus*, 27-Sep-2007, 482m, N39°32'52» E19°52'59», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: KO-0383-bri / 8897; Tissue No / DNA No: ZFMK-TIS-cKO0383 / ZFMK-DNA-0100400347; COI GenBank Accession No: GU213655

Echinodera brisouti (Reitter, 1885)
Location: Greece, Epirus, 9 km SW of Metsovo, Mikro Peristeri, collected on: *Quercus ilex*, 30-Sep-2007, 693 m, N39°45'03» E21°05'09», leg. Stüben, P., det. Stüben, P., Dry collection: CURCI at ZFMK; Sample ID / Biobank No: EP-0391-bri2 / 8898; Tissue No / DNA No: ZFMK-TIS-cEP0391 / ZFMK-DNA-0100400348; COI GenBank Accession No: GU213656

Echinodera bryneri **spec. nov.** Germann & Braunert, 2022
Location: Montenegro, Ulcinj Mun., 7.5 km Dubrava (type locality), collected via sifting, 29-APR-2018, 700 m, N42°03'12» E19°13'54», leg. Germann, C., det. Germann, C., dry collection: CURCI/SDEI at NMB; Sample ID: 3275-GER; DNA No: SDEI-DNA-3275-GER, COI GenBank Accession No: OM991939 (sequence obtained from paratype 3275-GER)

Echinodera capbonensis diottii (Stüben, 2010)
Taxonomic note: formerly *E. diottii*
Location: Italy, Trapani, Is. Pantelleria, Montagna Grande, 01-APR-2009, 1280 m, N37°53'00» E14°04'00», leg. Monzini, S., det. Monzini, S., dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-942-dit / 9550; Tissue No / DNA No: ZFMK-TIS-cI942 / ZFMK-DNA-0100405269; COI GenBank Accession No: GU213767

Echinodera capiomonti (H. Brisout de Barneville, 1864)
Location: Italy, Emilia-Romagna, San Giovanni in Marignano, 10 km W of Pésaro (RN), collected on: *Quercus*, 15-Oct-2001, 100 m, N43°56'06» E12°43'00», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-488-cap / 9045; Tissue No / DNA No: ZFMK-TIS-cI488 / ZFMK-DNA-0100400974; COI GenBank Accession No: GU213682

Echinodera corcyrensis Stüben, 2008
Location: Croatia, Dalmatia, 24 km W of Split, 1 km E of Marina, Poljica, collected on: *Quercus*, 1-Jul-2007, 20 m, N43°31'11» E16°08'31», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: HR-0307-cor / 8888; Tissue No / DNA No: ZFMK-TIS-cHR0307 / ZFMK-DNA-0100400080; COI GenBank Accession No: GU213650

Echinodera corcyrensis Stüben, 2008
Location: Greece, Epirus, 19 km E of Igoumenitsa, Petrovitsa, collected on: *Quercus ilex*, 01-Oct-2007, 355 m, N39°33'30» E20°28'12», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: EP-0409-cor / 8900; Tissue No / DNA No: ZFMK-TIS-cEP0409 / ZFMK-DNA-0100400350; COI GenBank Accession No: GU213658

Echinodera corcyrensis Stüben, 2008
Location: Greece, Kefalonia Isl., S Poros, 30-Apr-2017, 170 m, N38°07'59» E20°47'01», leg. Germann, C., det. Germann, C., dry collection: CURCI/SDEI at NMB; Sample ID: 3280-GER; DNA No: SDEI-DNA-3280-GER; COI GenBank Accession No: MW750620

Echinodera crenata Wollaston, 1863
Location: Spain, Canary Islands, Tenerife, S of Orotava, Orotava valley, Mirador de la Rosa, collected on: *Greenovia* sp., *Aeonium spathulatum*, 04-Oct-2008, 1503 m, N28°20'25» W16°31'29», leg. Astrin, J. & Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: E-710-cre / 9299; Tissue No / DNA No: ZFMK-TIS-cE710 / ZFMK-DNA-0100404845; COI GenBank Accession No: GU213719

Echinodera hypocrita (Boheman, 1837)
Location: Slovenia, Apasko Polje, Podgorje env., 30 km NE of Maribor, collected on: *Quercus*, *Carpinus*, 05-AUG-2006, 214 m, N46°42' E15°55', leg. Stejskal, R., det. Stejskal, R., dry collection: CURCI at ZFMK; Sample ID / Biobank No: SLO-0172-hyp / 8750; Tissue No / DNA No: ZFMK-TIS-cSLO0172 / ZFMK-DNA-0100400680; COI GenBank Accession No: GU987788

Echinodera ibleiensis Stüben, 2003
Location: Italy, Sicilia Isl. (SR), 1.5 km S of Ferla, Valle dell'Anapo, Monti Iblei, collected on: *Castanea*, *Quercus*, *Ceratonia siliqua*, 24-Oct-2002, 450 m, N37°06'14» E14°56'07», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-496-ibl / 9053; Tissue No / DNA No: ZFMK-TIS-cI496 / ZFMK-DNA-0100400675; COI GenBank Accession No: GU213687

Echinodera ingowolfi Stüben, 1998
Location: Greece, Kefalonia Isl., E Koulourata, 29-Apr-2017, 320 m, N38°12'02» E20°40'57», leg. Germann, C., det. Germann, C., dry collection: CURCI/SDEI at NMB; Sample ID: 3277-GER; DNA No: SDEI-DNA-3277-GER; COI GenBank Accession No: MW750617

Echinodera ingowolfi Stüben, 1998
Location: Greece, Kefalonia Isl., Mt. Enos, collected on: Abies cephalonica, 29-Apr-2017, 1100 m, N38°09'46» E20°37'19», leg. Germann, C., det. Germann, C., dry collection: CURCI/SDEI at NMB; Sample ID: 3278-GER; DNA No: SDEI-DNA-3278-GER; COI GenBank Accession No: MW750618

Echinodera kroumiriensis Stüben, 2004
Location: Tunisia, Kroumirie, 2 km E of Ain Draham, Jebel Bir, collected on: *Quercus suber*, *Quercus* sp., 20-Oct-2003, 770 m, N36°46'20» E08°42'40», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: T-500-kro / 9057; Tissue No / DNA No: ZFMK-TIS-cT500 / ZFMK-DNA-0100400671; COI GenBank Accession No: GU213691

Echinodera nebrodiensis Stüben, 2002
Location: Italy, Sicilia Isl., Madonie Castelbuono, Rifugio Crispi Agrifol., Piano Pomo, collected on: *Fagus*, 7-Feb-2008, 1400 m, N37°53'46» E14°04'01», leg. Kapp, det. Kapp, dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-828-neb / 9448; Tissue No / DNA No: ZFMK-TIS-cI828 / ZFMK-DNA-0100405551; COI GenBank Accession No: GU213743

Echinodera nuraghia Stüben, 2009
Location: Italy, Sardinia Isl. West, E of Macomer, above Lei, collected on: *Quercus*, *Acer monspessulanum*, 04-Oct-2010, 1020 m, N40°19'54» E08°53'49», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: IT1092c / 9675; Tissue No / DNA No: ZFMK-TIS-cIT1092c / ZFMK-DNA-0112704586; COI GenBank Accession No: MG322670

Echinodera peneckei Stüben, 1998 (formerly: Echinodera *brisouti peneckei*)
Location: Montenegro, Cetinje Mun., 2 km SE Kotor, Lovcén, collected: 23-APR-2018, 920 m, N42°24'33» E18°47'20», leg. Braunert, C., det. Germann, C., dry collection: CURCI/SDEI at NMB; Sample ID: 3589-GER; DNA No: SDEI-DNA-3289-GER; COI GenBank Accession No: MW822684

Echinodera peragalloi (Chevrolat, 1863)
Location: Italy, Sardinia Isl., S of Aritzo, Gadoni, R. Tistigliosi x F. Flumendosa, collected on: *Quercus ilex*, 30-Sep-2010, 490 m, N39°53'57» E09°11'02», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: IT1082c / 9665; Tissue No / DNA No: ZFMK-TIS-cIT1082c / ZFMK-DNA-0112702487; COI GenBank Accession No: MG322664

Echinodera romanboroveci Stüben, 1998
Location: Montenegro, Budva Mun., 3.5 km SE Petrovac, collected: 01-MAY-2018, 30 m, N42°10'52» E18°58'11», leg. Germann, C., det. Germann, C., dry collection: CURCI/SDEI at NMB; Sample ID: 3590-GER; DNA No: SDEI-DNA-3590-GER; COI GenBank Accession No: MW822685

Echinodera romanboroveci Stüben, 1998
Location: Montenegro, Bar Mun., 7 km E Petrovac, collected: 24-APR-2018, 490 m, N42°13'28" E19°01'24», leg. Germann, C., det. Germann, C., dry collection: CURCI/SDEI at NMB; Sample ID: 3591-GER; DNA No: SDEI-DNA-3591-GER; COI GenBank Accession No: MW822686

Echinodera settefratelliensis Stüben, 2005 (paratype)
Location: Italy, Sardinia Isl. South, 33 km NE of Cagliari, Sarrabus (Mts.), Rio di Cannas, collected on: *Quercus ilex*, *Arbutus*, *Salix*, *Pistacia lentiscus*, 2004-10-25, 110 m, N39°20'52» E09°27'18», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-495-set / 9052; Tissue No / DNA No: ZFMK-TIS-cI495 / ZFMK-DNA-0100400676; COI GenBank Accession No: GU213686

Echinodera siciliensis Stüben, 2003
Location: Italy, Puglia, Gargano, Casa D'Arguma, 26-APR-2008, 584 m, N41°45'35» E15°48'27», leg. Krátky, J., det. Krátky, J., dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-952-gar / 9582; Tissue No / DNA No: ZFMK-TIS-cI952 / ZFMK-DNA-0112704670; COI GenBank Accession No: MG322642

Echinodera soumasi Germann, Wolf & Schütte, 2015
Location: Greece, Peloponnese, NE of Pilos, S of Kazama, Polilimnos, 26-Sep-2014, 300 m, N36°59'00» E21°51'16», leg. Germann, C., det. Germann, C., dry collection: CURCI at ZFMK; Sample ID / Biobank No: 2798-PST / 17163; Tissue No / DNA No: ZFMK-TIS-26152 / ZFMK-DNA-0169166944; COI GenBank Accession No: KT289402

Echinodera soumasi Germann, Wolf & Schütte, 2015
Location: Greece, Kefalonia Isl., E Koulourata, 29-Apr-2017, 320 m, N38°12'02" E20°40'57", leg. Germann, C., det. Germann, C., dry collection: CURCI/SDEI at NMB; Sample ID: 3276-GER; DNA No: SDEI-DNA-3276-GER; COI GenBank Accession No: MW750616

Echinodera stuebeni Germann & Schütte, 2021
Location: Greece, Kefalonia Isl., W Vari, collected on: Quercus, 3-May-2017, 430 m, N38°23'04» E20°34'41», leg. Germann, C., det. Germann, C., dry collection: CURCI/SDEI at NMB; Sample ID: 3279-GER; DNA No: SDEI-DNA-3279-GER; COI GenBank Accession No: MW750619

Echinodera variegata (Boheman, 1837)
Location: Italy, Sicilia Isl. (PA), 8 km S of Carini, W of M. Gibilmesi, collected on: *Quercus*, 10-Oct-2006, 539 m, N38°04'03» E13°11'37», leg. Stüben, P., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: I-0412-var / 8902; Tissue No / DNA No: ZFMK-TIS-cI0412 / ZFMK-DNA-0100400007; COI GenBank Accession No: GU213660

Echinodera varroi Stüben, 2018
Location: Italy, Lazio, above S. Donato Val Di Comino, collected on: *Carpinus*, 05-MAY-2014, 756 m, N41°42'37» E13°48'39», leg. Stüben, P. & Schütte, A., det. Stüben, P., dry collection: CURCI at ZFMK; Sample ID / Biobank No: 1769-PST / 13855; Tissue No / DNA No: ZFMK-TIS-24093 / ZFMK-DNA-0171624095; COI GenBank Accession No: MF464649

Echinodera varroi Stüben, 2018
Location: Italy, Lazio, Cassino, Terme Varroniane, 06-MAY-2014, 47 m, N41°28'59» E13°49'52», leg. Stüben, P. & Schütte, A., det. Stüben, P., dry collection: CURCI at ZFMK; Collector´s No / Biobank No: 1775-PST / 13861; Tissue No / DNA No: ZFMK-TIS-24099 / ZFMK-DNA-0171624089; COI GenBank Accession No: MF464650

Appendix 3 - laboratory references

References to the different laboratory routines for sequences used in this study are provided in this table. References to the different laboratory routines for sequences used in this study are provided in this table.

Organism	**Collector´s no / GenBank acc no**	**laboratory routine ref.**
Acalles camelus	CZ1054 / KF680229	Schütte et al. 2013
Echinodera ariadnae	GR-0151-ari / EU286479	Astrin et al. 2012
Echinodera aspromontensis	I-647-asp / GU987985	Astrin et al. 2012
Echinodera aspromontensis	I-660-asp / GU987992	Astrin et al. 2012
Echinodera bellieri	I-629-tyr / GU213711	Astrin et al. 2012
Echinodera bellieri	I-641-tyr / GU987981	Astrin et al. 2012
Echinodera brachati	E-922-bra / GU213764	Astrin et al. 2012
Echinodera brachati peloponnensis	3163-PST / MK347695	Schütte et al. 2013
Echinodera brachati peloponnensis	3166-PST / MK347697	Schütte et al. 2013
Echinodera brisouti	EP-0391-bri2 / GU213656	Astrin et al. 2012
Echinodera brisouti	KO-0383-bri / GU213655	Astrin et al. 2012
***Echinodera bryneri* spec. nov.**	**3275-GER / OM991939 (new)**	**Stüben & Kramp 2019**
Echinodera capbonensis diottii	I-942-dit / GU213767	Astrin et al. 2012
Echinodera capiomonti	I-488-cap / GU213682	Astrin et al. 2012
Echinodera corcyrensis	3280-GER / MW750620	Stüben & Kramp 2019
Echinodera corcyrensis	EP-0409-cor / GU213658	Astrin et al. 2012
Echinodera corcyrensis	HR-0307-cor / GU213650	Astrin et al. 2012
Echinodera crenata	E-710-cre / GU213719	Astrin et al. 2012
Echinodera hypocrita	SLO-0172-hyp / GU987788	Astrin et al. 2012
Echinodera ibleiensis	I-496-ibl / GU213687	Astrin et al. 2012
Echinodera ingowolfi	3277-GER / MW750617	Stüben & Kramp 2019

Organism	Collector´s no / GenBank acc no	laboratory routine ref.
Echinodera ingowolfi	3278-GER / MW750618	Stüben & Kramp 2019
Echinodera kroumiriensis	T-500-kro / GU213691	Astrin et al. 2012
Echinodera nebrodiensis	I-828-neb / GU213743	Astrin et al. 2012
Echinodera nuraghia	IT1092c / MG322670	Schütte et al. 2013
Echinodera peneckei	GER-3589 / MW822684	Stüben & Kramp 2019
Echinodera peragalloi	IT1082c / MG322664	Schütte et al. 2013
Echinodera romanboroveci	GER-3590 / MW822685	Stüben & Kramp 2019
Echinodera romanboroveci	GER-3591/ MW822686	Stüben & Kramp 2019
Echinodera settefratelliensis	I-495-set / GU213686	Astrin et al. 2012
Echinodera siciliensis	I-952-gar / MG322642	Astrin et al. 2012
Echinodera soumasi	2798-PST / KT289402	Schütte et al. 2013
Echinodera soumasi	3276-GER / MW750616	Stüben & Kramp 2019
Echinodera stuebeni	3279-GER / MW750619	Stüben & Kramp 2019
Echinodera variegata	I-0412-var / GU213660	Astrin et al. 2012
Echinodera varroi	1769-PST / MF464649	Schütte et al. 2013
Echinodera varroi	1775-PST / MF464650	Schütte et al. 2013

Appendix 4 - COI sequences

We are convinced that molecular sequences should also be part of the initial description in the source in which they were first published, if possible. The fact that they are additionally stored separately in public databases like NIH´s GenBank is undoubtedly a further safeguard for the long-term availability of species-specific DNA barcodes. Here we provide previously unreleased sequences in easy to use fasta format. The content can be copied and pasted into any fasta or text file and easily imported into any bioinformatics application. The provided sequences represent the full length of 658 nucleotides of CO1 barcodes of the Folmer barcode region (Folmer et al. 1994). The first number in the taxa name is sample ID (internal naming «collector´s number»), and the second one is GenBank accession number. More details to the finding spots are provided in Appendix 2.

>***Echinodera_bryneri*_spec._nov.**-3275-GER.OM991939-Montenegro_Ulcinj_Mun.-type_locality
AACTTTATATTTCATTTTTGGTTCATGATCCGGAATAGTGGGAACTTCATTAAGAATACTAATCCGAA-
CAGAACTTGGAAACCCCGGAACCTTAATTGGTAATGACCAAATCTATAACACAATTGTAACTGCTCAT-
GCTTTCATTATAATCTTTTTCATAGTCATACCAATCATAATTGGAGGCTTTGGAAATTGGTTAATTC-
CATTAATACTTGGAGCTCCAGATATAGCTTTCCCGCGCCTTAATAATATAAGATTTTGGCTTCTACCAC-
CATCTCTTACCCTCCTACTAATAAGAAGAATTATTGACAAAGGAGCCGGGACTGGTTGAACAGTTTATC-
CTCCTTTATCCTCAAATATTGCTCATGAAGGAGCTTCTATCGACTTAGCCATTTTTAGTCTCCACAT-
AGCAGGAATCTCGTCAATTCTAGGAGCTATAAACTTTATCTCCACAGTAATAAATATACGCCCAACAGG-
TATAAAACTAGACCGAATACCTCTATTTATCTGAGCCGTAAAAATTACCGCCATTCTCCTTCTGTTATCAT-
TACCTGTCCTTGCAGGTGCTATCACTATACTTTTAACAGACCGAAATATTAATACATCATTTTTTGACCC-
CGCAGGAGGAGGAGACCCAATCCTCTACCAACATCTATTT

The sister species of *Echinodera bryneri* spec. nov. is *Echinodera romanboroveci*. Both COI sequences have been published previously (Germann & Schütte 2021) and are already available in GenBank (MW822685, MW822686), being provided here for informational purpose a second time.

>***Echinodera_romanboroveci***-GER-3590. MW822685-Montenegro_Petrovac
AACTTTATACTTCATTTTTGGCTCATGATCAGGAATAGTGGGAACATCACTAAGAATACTAATCCGAA-
CAGAACTCGGAAACCCTGGAACCTTAATCGGTAATGACCAAATCTATAACACAATTGTAACTGCTCAT-
GCTTTCATTATAATCTTTTTCATAGTCATACCTATCATAATTGGAGGCTTTGGAAATTGATTAATTC-
CATTAATACTTGGAGCTCCAGATATAGCTTTCCCACGCCTAAATAATATAAGATTTTGACTTCTACCTC-
CCTCTCTTACCCTCCTACTAATAAGAAGAATTATTGATAAAGGAGCTGGTACTGGCTGAACAGTATAC-
CCCCCTTTATCCTCAAATATTGCTCATGAAGGAGCCTCTATCGACTTAGCCATTTTTAGTCTCCAT-
ATAGCAGGAATTTCATCAATTCTAGGAGCTATAAACTTTATCTCTACAGTAATCAACATACGTCCAACAG-
GTATAAAACTAGACCAAATACCTCTATTTATCTGAGCCGTAAAAATTACTGCCATTCTTCTTCTACTATCAT-
TACCCGTCCTTGCAGGAGCTATCACCATACTTTTAACAGACCGAAATATTAATACATCATTTTTTGACCC-
CGCGGGAGGAGGAGACCCAATCCTCTACCAACATCTATTT

>***Echinodera_romanboroveci***-GER-3591. MW822686-Montenegro_Petrovac
AACTTTATACTTCATTTTTGGCTCATGATCAGGAATAGTGGGAACATCACTAAGAATACTAATCCGAA-
CAGAACTCGGAAACCCTGGAACCTTAATCGGTAATGACCAAATCTATAACACAATTGTAACTGCTCAT-
GCTTTCATTATAATCTTTTTCATAGTCATACCTATCATAATTGGAGGCTTTGGAAATTGACTAATTC-
CATTAATACTTGGAGCTCCAGATATAGCTTTCCCACGCCTAAATAATATAAGATTTTGACTTCTACCTC-
CCTCTCTTACCCTCCTACTAATAAGAAGAATTATTGATAAAGGAGCTGGTACTGGCTGAACAGTATAC-
CCCCCTTTATCCTCAAATATTGCTCATGAAGGAGCCTCTATCGACTTAGCCATTTTTAGTCTCCAT-
ATAGCAGGAATTTCGTCAATTCTAGGAGCTATAAACTTTATCTCTACAGTAATCAACATACGTCCGACAG-
GTATAAAACTAGACCAAATACCTCTATTTATTTGAGCCGTAAAAATTACTGCCATTCTTCTTCTACTATCAT-
TACCCGTCCTTGCAGGAGCTATCACCATACTTTTAACAGACCGAAATATTAATACATCATTTTTTGACCC-
CGCGGGAGGAGGAGACCCAATCCTCTACCAACATCTATTT

Appendix 5 - p-distance matrix

E. = *Echinodera* **country abbreviation** GR - Greece, IT - Italy, ME - Montenegro **number** provided number is the sample ID (MWI internal "Collector´s number") please refer to Appendix 2 or 3 for GenBank accession number	E. capbonensis diottii | I-942-dit | IT	E. hypocrita | SLO-0172-hyp | Slovenia	E. soumasi | 2798-PST | GR: Peloponnese	E. soumasi | 3276-GER | GR: Kefalonia	E. ingowolfi | 3277-GER | GR: Kefalonia	E. ingowolfi | 3278-GER | GR: Kefalonia	E. crenata | E-710-cre | CI: Tenerife	E. varroi | 1769-PST | IT: Lazio	E. varroi | 1775-PST | IT: Lazio	E. peragalloi | IT1082c | IT: Sardinia	E. corcyrensis | EP-0409-cor | GR: Epirus	E. corcyrensis | HR-0307-cor | Croatia
E. capbonensis diottii | I-942-dit | IT		19	18.1	19.6	16.9	16.7	17	17.8	17.6	18.8	16.3	16.4
E. hypocrita | SLO-0172-hyp | Slovenia	19		15.3	16.1	16.7	17.3	17.3	19.0	19.1	17.6	17.3	17.3
E. soumasi | 2798-PST | GR: Peloponnese	18.1	15.3		3	17.9	18.4	17.2	18.5	18.5	17.9	17.6	17.2
E. soumasi | 3276-GER | GR: Kefalonia	19.6	16.1	3		17.8	17.9	17.3	18.8	18.8	18.2	17.9	17.8
E. ingowolfi | 3277-GER | GR: Kefalonia	16.9	16.7	17.9	17.8		1.7	16.3	17.9	17.9	16.9	17.5	17.2
E. ingowolfi | 3278-GER | GR: Kefalonia	16.7	17.3	18.4	17.9	1.7		16.3	17.2	17	16.6	17.3	17.2
E. crenata | E-710-cre | CI: Tenerife	17	17.3	17.2	17.3	16.3	16.3		16.6	16.4	17.5	15.7	15.8
E. varroi | 1769-PST | IT: Lazio	17.8	19	18.5	18.8	17.9	17.2	16.6		0.5	11.6	11.9	11.6
E. varroi | 1775-PST | IT: Lazio	17.6	19.1	18.5	18.8	17.9	17	16.4	0.5		11.7	11.7	11.7
E. peragalloi | IT1082c | IT: Sardinia	18.8	17.6	17.9	18.2	16.9	16.6	17.5	11.6	11.7		11.9	11.6
E. corcyrensis | EP-0409-cor | GR: Epirus	16.3	17.3	17.6	17.9	17.5	17.3	15.7	11.9	11.7	11.9		0.9
E. corcyrensis | HR-0307-cor | Croatia	16.4	17.3	17.2	17.8	17.2	17.2	15.8	11.6	11.7	11.6	0.9	
E. corcyrensis | 3280-GER | GR: Kefalonia	16.3	17	17.2	17.8	17	16.9	15.3	11.7	11.6	11.6	0.5	0.5
E. settefratelliensis | I-495-set | IT: Sardinia	15.8	17.2	17.9	18.2	15.3	15.8	15.2	17.3	17.2	17.2	15.8	16.0
E. variegata | I-0412-var | IT: Sicily	15.5	17	16.9	17.6	15.2	15.8	13.7	17.2	17	16.1	15	15.0
E. kroumiriensis | T-500-kro | Tunisia	18.2	16.3	17.5	18.2	15.3	15.7	16	15.8	16	15	14	13.8
E. bellieri | I-629-tyr | IT: Campania	18.5	17.8	17.8	17.3	16.3	17	16	20.2	20.7	19	16.9	16.9
E. bellieri | I-641-tyr | IT: Basilicata	19.1	16.4	14.7	14.9	14.3	14.9	16	18.2	18.1	17.6	16.1	16.1
E. capiomonti | I-488-cap | IT	19	20.1	16.6	16.4	17.5	17.5	16.0	16	16.3	17.8	14.6	14.3
E. siciliensis | I-952-gar | IT: Puglia	18.2	16	15.8	15.2	14.3	14.4	14.6	15.2	15	14.7	13.8	13.5
E. ariadnae | GR-0151-ari | GR: Crete	16.9	15.2	14.6	15.7	16.3	16.3	17	16.4	16.3	16	15.2	15.3
E. nuraghia | IT1092c | IT: Sardinia	18.5	16.6	16.7	16.4	14	14.3	16	16.9	17	16.6	16.3	16.3
E. peneckei | GER-3589 | ME	17.9	16.1	17.5	17.6	14.6	15.2	16.1	16.4	16.6	16	15.7	15.7
E. nebrodiensis | I-828-neb | IT: Sicily	18.4	16.7	17	16.6	15	15.7	16.4	17.8	17.9	18.1	16.4	16.1
E. aspromontensis | I-647-asp | IT: Basil.	19.5	17.8	18.5	17.9	15.8	15.8	16.7	18.2	18.4	17.5	16.1	16.1
E. aspromontensis | I-660-asp | IT: Abruzzo	19.1	17.5	18.1	17.8	15.7	16	17	18.2	18.4	17.8	16.1	16.1
E. brachati | E-922-bra | GR: Peloponnese	17.9	16.8	16	15.6	16	15.9	15.7	15.9	15.7	15.9	16	16
E. brachati peloponnensis | 3163-PST | GR	18.5	16.7	15.8	15.8	16	16.4	16.4	17.2	17	16.4	16.6	16.6
E. brachati peloponnensis | 3166-PST | GR	18.1	17	16.4	16.4	16.6	17	16.6	18.1	17.9	17.3	17.2	17.2
E. ibleiensis | I-496-ibl | IT: Sicily	17.8	16.3	16.7	16.7	15.7	16.1	15.3	16.9	16.7	16	16.1	15.8
E. bryneri spec. nov. | 3275-GER | ME	18.1	16.3	16.7	16.7	15.8	15.8	15	16.6	16.7	15.7	13.7	13.7
E. romanboroveci | GER-3590 | ME	17.6	16	17.2	17	15	14.9	15	16	16.1	16.1	14.3	14.3
E. romanboroveci | GER-3591 | ME	18.2	16.4	17.2	17	15.2	15	15.2	16.1	16.3	16.1	14.4	14.4
E. stuebeni | 3279-GER | GR: Kefalonia	17.6	15.7	16	15.7	15.5	16	14.1	16.6	16.1	14.9	14.9	14.9
E. brisouti | EP-0391-bri2 | GR: Epirus	17.6	16	16.3	16.3	15.2	15	14.6	16.4	16.3	15.5	15.5	15.5
E. brisouti | KO-0383-bri | GR: Korfu	16.9	16.1	16	16.3	15.3	15.2	14.7	16.6	16.4	15.7	15.2	15.2

E. = *Echinodera* **country abbreviation** GR - Greece, IT - Italy, ME - Montenegro **number** provided number is the sample ID (MWI internal "Collector´s number") please refer to Appendix 2 or 3 for GenBank accession number	E. corcyrensis | 3280-GER | GR: Kefalonia	E. settefratelliensis | I-495-set | IT: Sardinia	E. variegata | I-0412-var | IT: Sicily	E. kroumiriensis | T-500-kro | Tunisia	E. bellieri | I-629-tyr | IT: Campania	E. bellieri | I-641-tyr | IT: Basilicata	E. capiomonti | I-488-cap | IT	E. siciliensis | I-952-gar | IT: Puglia	E. ariadnae | GR-0151-ari | GR: Crete	E. nuraghia | IT1092c | IT: Sardinia	E. peneckei | GER-3589 | ME	E. nebrodiensis | I-828-neb | IT: Sicily
E. capbonensis diottii | I-942-dit | IT	16.3	15.8	15.5	18.2	18.5	19.1	19	18.2	16.9	18.5	17.9	18.4
E. hypocrita | SLO-0172-hyp | Slovenia	17	17.2	17	16.3	17.8	16.4	20.1	16	15.2	16.6	16.1	16.7
E. soumasi | 2798-PST | GR: Peloponnese	17.2	17.9	16.9	17.5	17.8	14.7	16.6	15.8	14.6	16.7	17.5	17
E. soumasi | 3276-GER | GR: Kefalonia	17.8	18.2	17.6	18.2	17.3	14.9	16.4	15.2	15.7	16.4	17.6	16.6
E. ingowolfi | 3277-GER | GR: Kefalonia	17	15.3	15.2	15.3	16.3	14.3	17.5	14.3	16.3	14	14.6	15
E. ingowolfi | 3278-GER | GR: Kefalonia	16.9	15.8	15.8	15.7	17	14.9	17.5	14.4	16.3	14.3	15.2	15.7
E. crenata | E-710-cre | CI: Tenerife	15.3	15.2	13.7	16	16	16	16	14.6	17	16	16.1	16.4
E. varroi | 1769-PST | IT: Lazio	11.7	17.3	17.2	15.8	20.2	18.2	16	15.2	16.4	16.9	16.4	17.8
E. varroi | 1775-PST | IT: Lazio	11.6	17.2	17	16	20.7	18.1	16.3	15	16.3	17	16.6	17.9
E. peragalloi | IT1082c | IT: Sardinia	11.6	17.2	16.1	15	19	17.6	17.8	14.7	16	16.6	16.0	18.1
E. corcyrensis | EP-0409-cor | GR: Epirus	0.5	15.8	15	14	16.9	16.1	14.6	13.8	15.2	16.3	15.7	16.4
E. corcyrensis | HR-0307-cor | Croatia	0.5	16	15	13.8	16.9	16.1	14.3	13.5	15.3	16.3	15.7	16.1
E. corcyrensis | 3280-GER | GR: Kefalonia		15.7	14.7	13.7	16.9	15.8	14.1	13.5	15	16	15.3	16.1
E. settefratelliensis | I-495-set | IT: Sardinia	15.7		9.9	15.5	17	14.7	17	16	16	15.3	17.2	17.9
E. variegata | I-0412-var | IT: Sicily	14.7	9.9		15.8	16.4	14.9	16.1	14.3	15.2	14.7	14.9	16.3
E. kroumiriensis | T-500-kro | Tunisia	13.7	15.5	15.8		16.4	15	15.3	14.7	14.6	13.4	13.7	14.6
E. bellieri | I-629-tyr | IT: Campania	16.9	17	16.4	16.4		6.7	17.8	16.3	16.6	15.8	17	15.7
E. bellieri | I-641-tyr | IT: Basilicata	15.8	14.7	14.9	15	6.7		14.9	13.7	13.5	12.6	14.7	14.7
E. capiomonti | I-488-cap | IT	14.1	17	16.1	15.3	17.8	14.9		12	15.5	15.2	14.6	14.6
E. siciliensis | I-952-gar | IT: Puglia	13.5	16	14.3	14.7	16.3	13.7	12		13.1	13.1	13.1	13.2
E. ariadnae | GR-0151-ari | GR: Crete	15	16	15.2	14.6	16.6	13.5	15.5	13.1		10.5	11.9	10.9
E. nuraghia | IT1092c | IT: Sardinia	16	15.3	14.7	13.4	15.8	12.6	15.2	13.1	10.5		10	10
E. peneckei | GER-3589 | ME	15.3	17.2	14.9	13.7	17	14.7	14.6	13.1	11.9	10		9.9
E. nebrodiensis | I-828-neb | IT: Sicily	16.1	17.9	16.3	14.6	15.7	14.7	14.6	13.2	10.9	10	9.9	
E. aspromontensis | I-647-asp | IT: Basil.	15.8	18.2	15.5	15.3	16.3	15	14.7	14.1	12.3	10.3	9.4	8.2
E. aspromontensis | I-660-asp | IT: Abruzzo	15.8	18.4	15.5	15.2	16.1	15	14.6	14.6	12.3	10.6	9.1	7.8
E. brachati | E-922-bra | GR: Peloponnese	15.7	16.9	15.3	14.7	15.7	13.8	15.7	13.8	11.8	10	10.9	11.8
E. brachati peloponnensis | 3163-PST | GR	16.3	16.4	15	14.1	15.7	13.2	15.3	13.2	10.9	9.6	10.6	11.9
E. brachati peloponnensis | 3166-PST | GR	16.9	16.9	15.7	14.7	15.8	13.7	15.7	14	11.7	10.2	11.2	12.3
E. ibleiensis | I-496-ibl | IT: Sicily	15.8	16.7	12.9	15.3	16.9	15.7	14.7	12.5	11.9	10.3	11.9	12.2
E. bryneri spec. nov. | 3275-GER | ME	13.4	16.7	15.7	13.8	15.8	14.1	14	12.6	10.5	10.2	9.6	11.4
E. romanboroveci | GER-3590 | ME	14	16.3	16	14	16.3	13.5	14.1	11.9	10.5	9.6	9.4	10.2
E. romanboroveci | GER-3591 | ME	14.1	16.4	16.4	14.4	16.9	13.8	14.4	12	10.8	9.6	9.7	10.8
E. stuebeni | 3279-GER | GR: Kefalonia	14.6	15.2	13.2	12.9	15	12.3	14.6	12.2	9.9	9.7	9.7	10
E. brisouti | EP-0391-bri2 | GR: Epirus	15.2	15.5	13.2	13.8	16.9	14	15.8	12.6	10.9	9.6	9.7	10.5
E. brisouti | KO-0383-bri | GR: Korfu	14.9	15.2	13.1	14.1	16.1	13.8	16.3	13.4	10.8	10.2	10.5	10.6

E. = *Echinodera* **country abbreviation** GR - Greece, IT - Italy, ME - Montenegro **number** provided number is the sample ID (MWI internal "Collector´s number") please refer to Appendix 2 or 3 for GenBank accession number	E. aspromontensis | I-647-asp | IT: Basil.	E. aspromontensis | I-660-asp | IT: Abruzzo	E. brachati | E-922-bra | GR: Peloponnese	E. brachati peloponnensis | 3163-PST | GR	E. brachati peloponnensis | 3166-PST | GR	E. ibleiensis | I-496-ibl | IT: Sicily	E. bryneri spec. nov. | 3275-GER | ME	E. romanboroveci | GER-3590 | ME	E. romanboroveci | GER-3591 | ME	E. stuebeni | 3279-GER | GR: Kefalonia	E. brisouti | EP-0391-bri2 | GR: Epirus	E. brisouti | KO-0383-bri | GR: Korfu
E. capbonensis diottii | I-942-dit | IT	19.5	19.1	17.9	18.5	18.1	17.8	18.1	17.6	18.2	17.6	17.6	16.9
E. hypocrita | SLO-0172-hyp | Slovenia	17.8	17.5	16.8	16.7	17	16.3	16.3	16	16.4	15.7	16	16.1
E. soumasi | 2798-PST | GR: Peloponnese	18.5	18.1	16	15.8	16.4	16.7	16.7	17.2	17.2	16	16.3	16.0
E. soumasi | 3276-GER | GR: Kefalonia	17.9	17.8	15.6	15.8	16.4	16.7	16.7	17	17	15.7	16.3	16.3
E. ingowolfi | 3277-GER | GR: Kefalonia	15.8	15.7	16	16	16.6	15.7	15.8	15.0	15.2	15.5	15.2	15.3
E. ingowolfi | 3278-GER | GR: Kefalonia	15.8	16	15.9	16.4	17	16.1	15.8	14.9	15	16	15	15.2
E. crenata | E-710-cre | CI: Tenerife	16.7	17	15.7	16.4	16.6	15.3	15	15	15.2	14.1	14.6	14.7
E. varroi | 1769-PST | IT: Lazio	18.2	18.2	15.9	17.2	18.1	16.9	16.6	16	16.1	16.6	16.4	16.6
E. varroi | 1775-PST | IT: Lazio	18.4	18.4	15.7	17	17.9	16.7	16.7	16.1	16.3	16.1	16.3	16.4
E. peragalloi | IT1082c | IT: Sardinia	17.5	17.8	15.9	16.4	17.3	16	15.7	16.1	16.1	14.9	15.5	15.7
E. corcyrensis | EP-0409-cor | GR: Epirus	16.1	16.1	16	16.6	17.2	16.1	13.7	14.3	14.4	14.9	15.5	15.2
E. corcyrensis | HR-0307-cor | Croatia	16.1	16.1	16	16.6	17.2	15.8	13.7	14.3	14.4	14.9	15.5	15.2
E. corcyrensis | 3280-GER | GR: Kefalonia	15.8	15.8	15.7	16.3	16.9	15.8	13.4	14	14.1	14.6	15.2	14.9
E. settefratelliensis | I-495-set | IT: Sardinia	18.2	18.4	16.9	16.4	16.9	16.7	16.7	16.3	16.4	15.2	15.5	15.2
E. variegata | I-0412-var | IT: Sicily	15.5	15.5	15.3	15	15.7	12.9	15.7	16	16.4	13.2	13.2	13.1
E. kroumiriensis | T-500-kro | Tunisia	15.3	15.2	14.7	14.1	14.7	15.3	13.8	14	14.4	12.9	13.8	14.1
E. bellieri | I-629-tyr | IT: Campania	16.3	16.1	15.7	15.7	15.8	16.9	15.8	16.3	16.9	15	16.9	16.1
E. bellieri | I-641-tyr | IT: Basilicata	15	15	13.8	13.2	13.7	15.7	14.1	13.5	13.8	12.3	14	13.8
E. capiomonti | I-488-cap | IT	14.7	14.6	15.7	15.3	15.7	14.7	14	14.1	14.4	14.6	15.8	16.3
E. siciliensis | I-952-gar | IT: Puglia	14.1	14.6	13.8	13.2	14.0	12.5	12.6	11.9	12	12.2	12.6	13.4
E. ariadnae | GR-0151-ari | GR: Crete	12.3	12.3	11.8	10.9	11.7	11.9	10.5	10.5	10.8	9.9	10.9	10.8
E. nuraghia | IT1092c | IT: Sardinia	10.3	10.6	10	9.6	10.2	10.3	10.2	9.6	9.6	9.7	9.6	10.2
E. peneckei | GER-3589 | ME	9.4	9.1	10.9	10.6	11.2	11.9	9.6	9.4	9.7	9.7	9.7	10.5
E. nebrodiensis | I-828-neb | IT: Sicily	8.2	7.8	11.8	11.9	12.3	12.2	11.4	10.2	10.8	10	10.5	10.6
E. aspromontensis | I-647-asp | IT: Basil.		1.1	11.8	10.9	11.7	11.9	11.1	9.7	9.4	10.5	10.2	10.9
E. aspromontensis | I-660-asp | IT: Abruzzo	1.1		11.8	10.9	11.7	12.2	10.8	10	10.3	10	10.2	10.9
E. brachati | E-922-bra | GR: Peloponnese	11.8	11.8		3.1	4	10.4	11.9	11.8	12.1	11	9.3	9.5
E. brachati peloponnensis | 3163-PST | GR	10.9	10.9	3.1		0.9	10.5	11.2	11.6	11.9	10.3	9.4	9.6
E. brachati peloponnensis | 3166-PST | GR	11.7	11.7	4	0.9		11.2	12	12.3	12.6	10.9	9.9	10.2
E. ibleiensis | I-496-ibl | IT: Sicily	11.9	12.2	10.4	10.5	11.2		10.2	11.2	11.6	11.1	9.1	10
E. bryneri spec. nov. | 3275-GER | ME	11.1	10.8	11.9	11.2	12	10.2		5.9	6.2	9.4	9.9	10.2
E. romanboroveci | GER-3590 | ME	9.7	10	11.8	11.6	12.3	11.2	5.9		0.6	9.4	8.8	9.7
E. romanboroveci | GER-3591 | ME	9.4	10.3	12.1	11.9	12.6	11.6	6.2	0.6		10	9.4	10.3
E. stuebeni | 3279-GER | GR: Kefalonia	10.5	10	11	10.3	10.9	11.1	9.4	9.4	10		8.7	8.7
E. brisouti | EP-0391-bri2 | GR: Epirus	10.2	10.2	9.3	9.4	9.9	9.1	9.9	8.8	9.4	8.7		2
E. brisouti | KO-0383-bri | GR: Korfu	10.9	10.9	9.5	9.6	10.2	10	10.2	9.7	10.3	8.7	2	